

SOUTHERN TEXTILE BULLETIN

VOL. 29

CHARLOTTE, N. C., THURSDAY, OCTOBER 15, 1925

NUMBER 7



Y a r n m a k e r

*the new and better spinning
frame drive belt*

Although but three months since Yarnmaker was formally christened by textile mill men the new belt has won a host of friends—especially among Southern mills.

Built especially for spinning frame drives it is purely and simply a textile mill belt—built for textile mills—named by textile mill men. Formerly most any general purpose belt has been used on spinning frames. Now there is a special belt—built only for spinning frames—and used for no other purpose.

Yarnmaker keeps up your production better and lasts longer than any other belt. It is doing this on hundreds of spinning frame drives now. It will do as much for you on your drives. To say that Yarnmaker keeps up production and lasts longer than any other belt is a strong statement to make—but it is also a true statement. There is no other belt like it.

It is stocked at our branch in Atlanta—and at our main factory here in Chicago. You can receive immediate deliveries from either place.

Chicago  Belting

37 Trinity Avenue, Atlanta, Georgia—122 North Green Street,
Chicago

A PROBLEM has arisen that challenges the serious consideration of our membership and that is the need of textile machinery and repair parts plants in the South.

There is no adequate reason why we should be compelled to depend upon plants situated at remote centers which, in the very nature of things, makes for expensive equipment and maintenance of our mills and resulting uneconomic supply and distribution of our products.

Past President C. E. HUTCHISON,
American Cotton Mfrs. Assn.

Here's the Solution to Part of Your Problem

Charlotte Manufacturing Co.

Incorporated 1911

Charlotte, North Carolina

FOR card clothing and reeds today, the South no longer depends "upon plants situated at remote centers, which in the very nature of things makes for expensive equipment and maintenance of our mills."

Located in the very heart of the textile South, the Charlotte Manufacturing Company has a large modern plant devoted to the manufacture of dependable card clothing and reeds. This Company manufactures Cylinders Fillet, Doffer, Stripper and Burnisher Fillet, stocks Top Flat Chains and Emery Fillet, and reclothes Top Flats and rewinds lickerins.

Young Ideas—

THE J. H. WILLIAMS CO.



THE SHUTTLE PEOPLE

Southern Representative

Geo. F. Bahan,
Charlotte, N. C.,

GENERAL DYESTUFF CORPORATION

Successor to Dyestuff Department of H.A. METZ & CO.^{INC.}

Quality and Service

This is addressed to you—who think as we do—that the importance of quality in dyestuffs cannot be over-magnified. Experience, knowledge and expert judgment are always valuable. When they are combined, as in this organization, for the making and application of dyestuffs, proportionate benefits are bound to accrue to the users.

You are invited to test the worth of these dyestuffs—to receive full measure by a service that acts on its own initiative to secure your complete satisfaction.

We and our immediate predecessors have an experience of over 50 years in introducing and handling dyestuffs in America.

*Diamine Alizarine Indanthrene Helindon Hydron
and other Colors of Domestic and Foreign manufacture.*

Sole Importers of
the Dyestuffs Manufactured by
Farbwerke, vormals Meister, Lucius & Bruning,
and
Leopold Cassella & Co., G. m. b. H.

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132 Chestnut St., Philadelphia, Pa. 449 N. La Salle St., Chicago, Ill.
316 Turk's Head Bldg., Providence, R. I.
20 Natoma St., San Francisco, Cal.

It's Not Done . Any More



THE day has passed when gentlemen callers are pressed into service to hold skein yarn while the lady winds it into a ball. Modern women demand that their knitting yarn be in the wound form when they buy it.

Likewise the day has passed for many textile mills when they will accept dyed yarn in skeins or chain warps. This is because they have learned of the many advantages of having their yarn dyed by the Franklin Process. This modern, patented, commission dyeing service colors and delivers yarn in the wound form, —the Franklin Package (also on jackspools for worsted mills). It not only eliminates

the waste which comes from tangling or felting of skeins or chain warps, but also in certain cases, by eliminating extra operations, reduces winding costs by 5 cents a pound. Because it dyes under pressure it also effects better penetration of color.

Can we save you money?

We can answer this question frankly and completely only when we have all the facts. If you use colored or bleached cotton, worsted, jute, hemp or linen yarns, spun silk or silk noils, it will be worth your while to at least investigate.

As a first step we suggest that you send for our de luxe book "The Franklin Process—Its Contribution to the Textile Industry." No obligation.

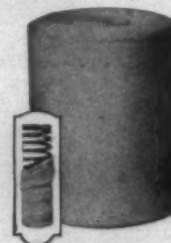
FRANKLIN PROCESS COMPANY

Dyers of cotton, woolen, worsted, jute, hemp and linen yarns and silk noils, also yarn spinners and manufacturers of glazed yarns.

• Use •

FRANKLIN PROCESS Colored Yarns

*The Wound Form Dyeing
Reduces Breakage*



THE FRANKLIN PACKAGE
The spring tube is fully protected
by patents.

OFFICES

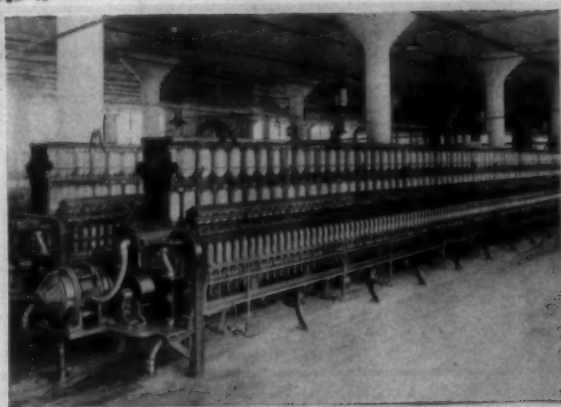
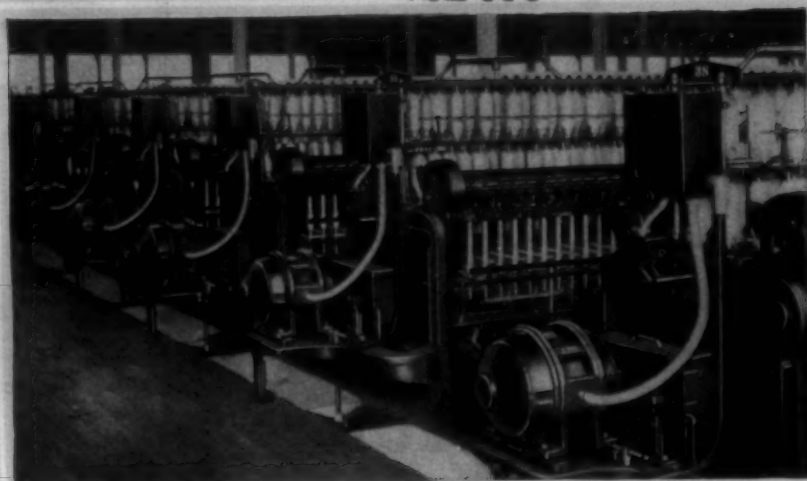
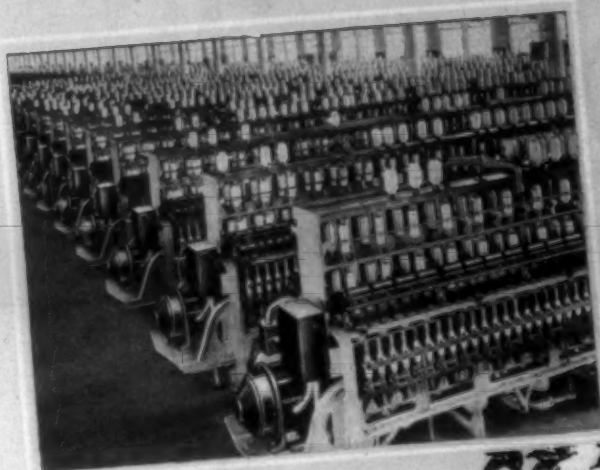
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Providence, R. I.
Branch plant at Philadelphia.

Southern Franklin Process
Company
at Greenville, S. C.

New York Office
66 Leonard Street

FRANKLIN PROCESS

Commission Dyeing of Yarn in the Wound Form



Where Constant

The spinning process is, in many respects, the most important step in the manufacture of textile fabrics. If the yarn isn't uniform—the finest looms and finishing machinery in the country could not produce a perfect fabric.

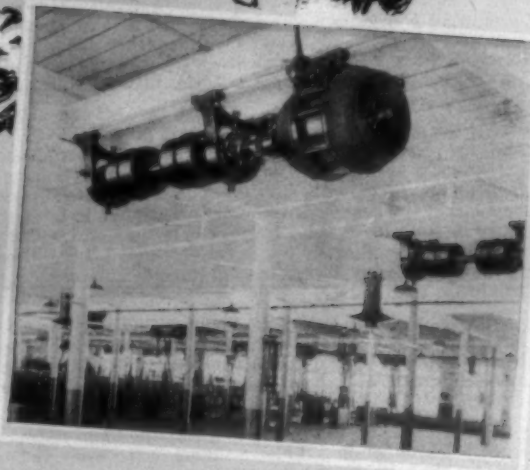
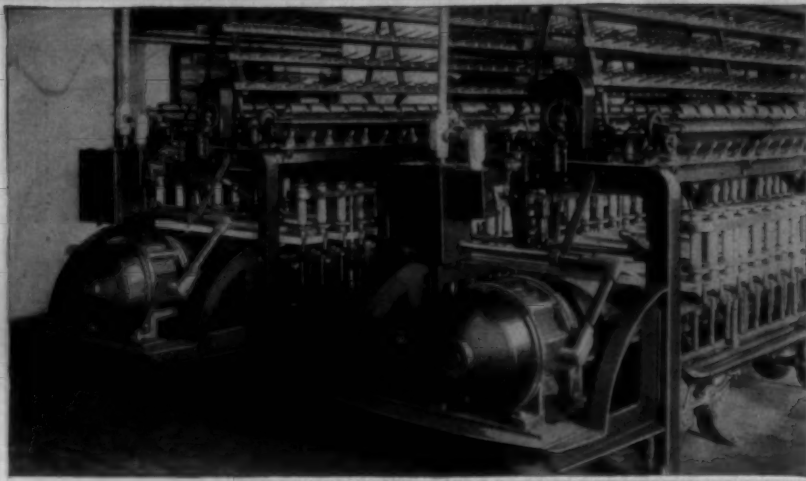
The yarn can not be uniform unless the frames are operated at a *uniform speed*. This one fact alone justifies the use of G-E Motors.

The difference in production of frames individually driven by G-E Motors as compared with mechanical drive shows from 5 to 10 per cent increase—and the *quality* of the yarn produced is *more uniform*, frequently commanding a higher price in the market.

Belt-driven spinning frames, especially shafting drive, are subjected to variations in output. Belt tensions are constantly changing, due to stretch, wear, varying conditions of

GENERAL

GENERAL ELECTRIC COMPANY, SCHENECTADY, NEW YORK



Speed is Essential

temperature and humidity—and the resulting belt slip makes uniform speed impossible.

In new mills, G-E Motors should be applied individually to the spinning frames as the design of the building can be made to conform easily to this type of equipment. The motors are mounted on brackets at the ends of the frames, and connected to the cylinder shafts by either chain or gearing. This insures *positive and uniform speed*. Motor brackets have been standardized by the cotton machinery manufacturers.

To meet the requirements for the individual drive of spinning frames, a complete line of special G-E Motors are ready for work. These motors are available in sizes from 5 H.P. to 15 H.P., in several speeds, and for all standard voltages. A suitable G-E Control device can be furnished for each motor.



FITTING THE MOTOR TO THE MACHINE

Each G-E Motor, instead of being a make-shift, is designed and built for the special service for which it is recommended and sold.

ELECTRIC
SALES OFFICES IN ALL LARGE CITIES

THE lack of uniformity in spooling and warping is the source of most of the expense, stops and general troubles at the loom.

As the process is usually practiced, using ordinary spooling and warping machinery, it is positively injurious to the yarn. The tension on ordinary spoolers is high and very irregular, and good yarn is often strained nearly to the breaking point by the sudden stresses put upon it by the bouncing of the bobbin in its cradle. Weak places result, which later cause trouble at the loom.

At the ordinary warper, the tension on the thread is also high and very irregular as may be noticed upon examination of the surface of a beam. The threads having lower tensions build up higher than those with high tensions. The threads lying in the bottoms of the grooves are the ones that have to be stretched the most in the slasher and consequently will be weaker than the others. If the threads wound under high tension predominate in the loom beams, the low tension threads will run slack and cause trouble in the looms.

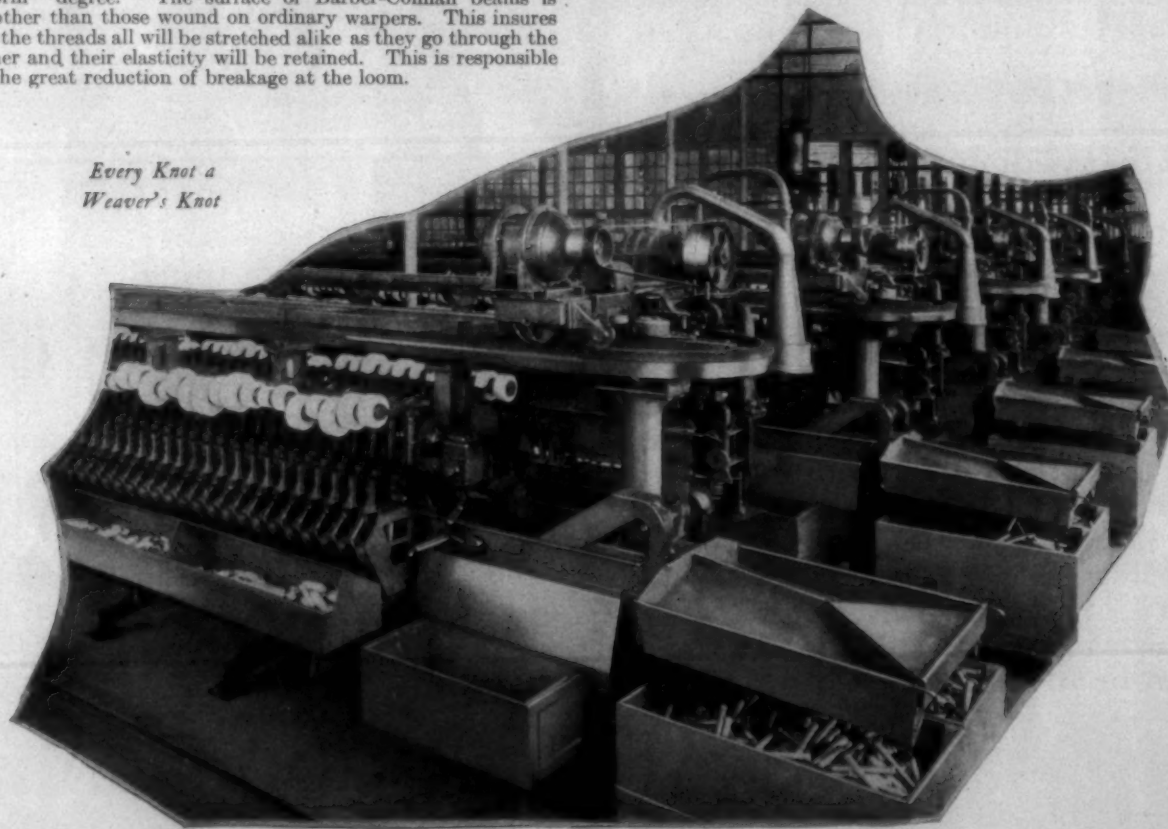
Barber-Colman Automatic Spoolers and High Speed Warpers have removed much of the expense and delay in the weave room by controlling a slow uniform tension on the yarn at the spoolers and warpers which in turn has reduced stops at the loom from 25 to 35%.

A reduction of 25 to 35% stops at the loom means not only increased production but also a saving in the weaving cost due to the fact that the weaver can tend more looms, each loom having fewer stops and requiring less attention.

The mere examination of the surface of beams wound on ordinary warpers as compared with beams wound by the Barber-Colman process is sufficient evidence of the difference in control of tensions.

At the Barber-Colman warpers, the yarn is wound from ball bearing containers. Tension is reduced to a remarkably low and uniform degree. The surface of Barber-Colman beams is smoother than those wound on ordinary warpers. This insures that the threads all will be stretched alike as they go through the slasher and their elasticity will be retained. This is responsible for the great reduction of breakage at the loom.

*Every Knot a
Weaver's Knot*



B V C
TRADE MARK

BARBER-COLMAN COMPANY
ROCKFORD, ILLINOIS

BOSTON, MASS.

GREENVILLE, S. C.

Uniform Tension

reduced Damage to
Yarn in handling

Eliminates Weak Spots
and reduces Loom Stops

A careful estimate will be submitted upon request to all mill operators desirous of examining definite figures on operating costs for Barber-Colman Automatic Spoolers and High Speed Warpers, saving in labor costs, increased quality production, etc., net savings that will pay for an installation in a short time.

SOUTHERN TEXTILE BULLETIN

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Development of Rayon Industry

THE statement was made some time ago that "the future belongs to the nation which makes the best use of its coal resources," but no doubt the best use of wood or cellulose resources is also an important factor in national economy and civilization. Everyone knows and uses cellulose ever day in its different forms, as it is the most commonly known product of nature, being present in all kinds of manifestations of life, such as wood, plants, vegetables, cotton and linen. The living world could exist for eternity without coal, but would not be able to develop without cellulose, a synthetic product of the wonderful power of nature.

Everyone uses cellulose, but who knows how the common elements of carbon, oxygen and hydrogen are being put together to create the foundation of life. Modern civilization is based on coal, iron and cellulose. The study of the first two helped to establish productivity of the human being, but regarding cellulose, the research work of modern chemistry has not yet fulfilled its task, although great progress has been made in recent years in the development of chemical knowledge of this most prevalent natural product.

Cellulose.

The organs of the plant are composed of cells which are enveloped by a transparent, colorless film or membrane, consisting of cellulose. The whole frame work of the plant is built up from cells. The cellulose membrane is permeable only to crystalloids and impervious to colloids. Cellulose itself behaves as a typical colloid, similar to many organic compounds of high molecular weight, such as starch or proteins. In trees it builds the cells of the woody portion.

Chemical Wood Pulp Contains 60 Per Cent Cellulose.

Coniferous woods contain about 60 per cent cellulose, known under the technical term of chemical wood pulp, which is used as raw material for paper and artificial silk. The manufacture of wood pulp and paper is the seventh largest industry in the country.

Wood pulp consists essentially of a large number of hairlike fibres, interwoven so closely that they form a continuous surface, their average length being 3mm., this be-

ing approximately one hundred times their width. In a sheet of paper of this size there are about three million fibres of natural length. The fibres of cellulose are extracted from the state they are found in nature by the pulping process, which decomposes lignicelluloses in the lignified tissues of perennial stems in the woods. The decomposition of spruce wood, for instance, with caustic soda, yields 42.8 per cent pure cellulose and residual lye which contains 21.6 per cent of lignin, 18.2 per cent of lactones and hydroxy-acids (as lactic acid), 3.2 per cent acetic acid, 1.7 per cent formic acid, and 1.7 per cent of methyl alcohol.

Spruce Pulp and Cotton Raw Materials For Rayon.

For the manufacture of artificial silk, today called rayon, spruce pulp and cotton are used as raw material. From the cotton the cheaper part is taken, namely, the cotton cells projecting from the seed capsule as seed hairs, commercially named cotton linters, a by-product of the cotton seed and cotton oil mills. There are hundreds of millions of dollars invested in plants using cotton seed as a raw material for oil and by-products, this being the second largest industry in the Southern states.

Alpha and Gamma Cellulose

Alpha-cellulose is a resistant cellulose insoluble in caustic soda. Beta and Gamma cellulose, also known under the name hemi-celluloses, are soluble in alkali. Beta cellulose dissolves in caustic soda with a yellow color, and seems to contain oxy-cellulose. It has an acid character, being soluble in alkali, it forms also insoluble salts with iron and copper, which are liable to discolor rayon if these metals are not eliminated.

Gamma-cellulose is a decomposed product which is soluble in alkalis and acids, and is produced by hydrolysis of oxy-cellulose, the result being a mixture of pentosans and nexoses, like mannose, glucose and dextrose. Hemi-cellulose have high reducing power and influence the shade of color, a point important

in the manufacture of rayon because the content of hemi-cellulose interferes with uniform color in the dyeing process. For this reason, the bleaching of cellulose must be controlled very carefully to avoid oxidation of the material. Cellulose when heated with sodium hydroxide decomposes to oxalic acid, and heated with dilute hydrochloric acid furfural is split off. Cellulose treated with inorganic acids or acid salts at high temperatures become brittle and changes to hydro-cellulose. Fused with caustic alkalis it decomposes to carbon dioxide, hydrogen and acetic acid. Distillation of cellulose gives wood alcohol, acetone and acetic acid.

Due to its aldehyde character, oxy-cellulose has a pronounced reducing power, which can be expressed by the copper number, that is, the amount of copper which is precipitated from Fehling's solution. The presence of oxy-cellulose in wood pulp or rayon influences the quality of the final product, especially its strength and uniformity of dyeing.

Cellulose Treated With Caustic Acid.

Cellulose when treated with caustic soda, which process is known as mercerization, is changed to cellulose hydrate, commonly known as soda cellulose. This compound has an increased capacity for dyes and greater reactivity, but is unstable and undergoes changes of molecular structure. The direction and the velocity of the reaction can be influenced by temperature and time, which process is of great importance in the industry, and is known in the viscose rayon manufacture under the name of "aging of soda cellulose."

Theory and Synthesis of Cellulose.

The theory and synthesis of cellulose are so far very speculative, and research work on a large scale ought to be contributed to the theory of cellulose structure. We in the industry are not so much interested in the synthesis of our raw material, but rather in the continu-

ous supply of wood cellulose, supported by reforestation, and this is, or rather will be, a great problem in the economy of wood supply in this country.

History of Artificial Silk or Rayon.

Solutions of baffling problems usually bring only few changes in the practical methods of manufacture, but the chemist always looks for the exact knowledge of the happenings in the production based entirely on synthetic processes. This is the desire of one of the youngest industries, namely, the artificial silk industry, which is approaching its fulfillment, but is still in need of help from chemical and mechanical research. Research work results in a better product obtained at a lower cost, an achievement always desirable to a chemist.

Manufacture of rayon is a good example of an industry where the technique is considerably in advance of the theory of the process which at the present time is based mostly on empirical research. The publications are scarce, as most of the research so far has been carried out by manufacturers, remaining unpublished, and the patent literature contains little, if any, information of scientific value.

Represents Art and Refinement in Textiles.

Rayon represents the art and refinement in textiles. The advance in art education and artistic taste and appreciation, particularly among the female part of the population, called for radical changes in the development of textiles. By the study of art in colleges, which has been encouraged by many art museums like the Metropolitan Museum and organizations like The Art and Industries Foundation, and by the inspiring work of publications, the educated part of the population created in recent years a demand for more lively and artistic combinations of colors luster and design of texture. The post-war period stimulated this desire for light and pleasure, and adding the high average buying power which helps any industrial development, one has the reasons for the tremendous growth of the artificial silk industry at the present time. The renaissance in the textile industry started after the war, due to the art in these lines, and has been greatly supported by the increased

knowledge of chemistry resulting in the synthesis of rayon.

Not a Substitute for Silk.

This fibre is not a substitute for silk. It is a distinct textile product as is wool, silk, cotton, flax, etc. We see how the silkworm produces silk, and we are trying to reproduce in a mechanical way this natural process, using an entirely different chemical formation. The silkworm changing from the caterpillar to the chrysalis stage in spinning its cocoon ejects through two extremely fine spinnerets, which are placed in the mouth, a semi-liquid viscous substance, high, leaving the glands, hardens immediately upon contact with the air. It is composed of two albuminous products containing about 80 per cent fibroin and 20 per cent sericin, the latter being a soluble gum. One cocoon of bombyx mori contains up to 700 yards of silk.

Synthesis of Rayon Based on Reacting of Cellulose Molecules.

The synthesis of rayon is based on a chain of reactions of the cellulose molecules, and the history of the past 40 years is a period of research on cellulose in connection with this synthesis until it has been transformed into a commercial enterprise of a far-reaching young industry. The principle of producing artificial thread is to dissolve cellulose in the form of its various compounds and force the semi-liquid substance through fine capillary openings to precipitate it again in the form of a thread composed of pure cellulose. The spinning solution is forced under pressure through fine orifices into a precipitating solution called "spin bath," and the produced filaments gathered together under tension and wound on spools.

The manufacture of artificial silk is a series of complicated mechanical and chemical operations. It is a matter of producing a chemically and physically perfect uniform fibre, for the time being, based on plant experience established rather on empiric formulas than, as said before, on scientific proceedings.

Chardonnet and Other Pioneers.

In 1734 Reaumur suggested replacing natural silk with an artificial product. This idea was forgotten until 1885, when the Swiss, Andemars, patented a process of spinning either alcohol solution of nitrocellulose, by dipping a pointed steel rod into the solution and pulling a thread. In 1882, Swan, Wyne, Swinburne and Powell produced nitrocellulose threads for carbon filaments for electric bulbs, but they also were not commercially successful.

In 1884, Count Hilaire de Chardonnet first conceived the idea of forcing collodion solution through fine capillary openings and patented a manufacturing process in the same year. The nitrocellulose solution was pressed through fine jets into a precipitating bath and the fine filaments were wound in groups. The product was not yet denitrated, and so was very inflammable. Later on he started to make artificial silk on a commercial scale, and the first plant was erected in Besancon,

France. In 1800, Depasissis dissolved cellulose in an ammoniacal solution of copper hydrate, but it was not until 1897 that Pauly was first able to start the production of copper ammonia cellulose. In 1892, Cross, Bevan and Beadle discovered the cellulose xanthate which they named viscose. This discovery gave the start to viscose manufacture which is today, the most widely-used process.

About the same time, the acetate esters of cellulose were produced by Cross which became the basis of another synthetic fibre, known as acetic silk. In 1891, the first plant was built for the production of Chardonnet silk, according to the nitro-cellulose process, by the "Societe Anonyme pour la Fabrication de la Soie de Chardonnet," in Besancon. Most of the manufacturing organizations met technical difficulties and failed on account of the operating troubles due to the very complicated chemical reactions and mechanical equipment, until before the war, the plants in Germany and England established financial success after the chemical side of the process had been greatly improved by continuous search work covering a period of 20 years.

During this time, and in the following years, innumerable patents covering the chemical and mechanical improvements were taken out. In the United States unsuccessful attempts were made until 1913, when a production of one and one-half million pounds was reached, based on the viscose process. In England the people laughed when silk was begun to be manufactured in Manchester, claiming that "they try to make silk stockings out of cabbage."

Nitrocellulose Process.

The bleached cotton is nitrated in an operation similar to the manufacture of smokeless gunpowder. Cotton linters are immersed for a period of time at a constant temperature in a mixture of concentrated nitric and sulphuric acids in a centrifugal. Then the excess of acid is removed, regenerated, and used again. The resulting product, consisting mostly of tri-nitrocellulose, is washed neutral with water and hydro-extracted. The nitration of cellulose is an operation which requires very careful control in regard to the chemical composition and temperature of reaction.

The nitrocellulose is dried slightly and then mixed with ether and alcohol in slowly rotating tanks until a solution of syrupy consistency called collodion is obtained. Then the solution is passed under pressure to a set of filter presses to remove the insoluble impurities and particles which have not been completely nitrated. The collodion solution is forced by pressure to so-called spinning machines where the liquid is pressed through capillary glass tubes and the ejected semi-liquid streams emerging from the orifices are collected in groups under tension on rotating glass cylinders or spool placed in the upper part of the spinning machine. During the formation of filaments, hot air is blown under the covers of the

machines and the solvents are removed the nitro-cellulose, now in the form of filaments, solidifies.

The thread wound on the spools consists of several fine filaments which are then twisted on fast rotating vertical spindles on twisting machines whereby the twisted yarn is wound on horizontal take-up bobbins. The raw yarn is then removed from the bobbins by reeling into the commercial form of skeins on reeling machines.

Denitration.

The yarn, consisting of nitrocellulose, is inflammable like gun cotton and a further chemical treatment is necessary to remove the explosive properly by a process of denitration whereby the nitro-groups are removed and the thread remains as pure cellulose. This denitration is effected by treatment of the skeins with a warm solution of sodium hydro-sulfide. Then the chemicals are removed by washing, the uniform white color of the yarn is obtained by bleaching, and after drying and examining, the skeins, which are several thousands yards in length, are ready to be shipped.

FOUR—Development of Rayon in

This process is quite expensive on account of the high cost of the chemicals used. The solvents, alcohol and ether, are partly recovered and used again for the solution of nitrocellulose. If the denitration is not perfect, the silk becomes yellow when stored and does not take the dye evenly.

Cuprammonium Process.

A solution of cellulose in ammoniacal copper oxide was the basis of the second process established in this industry. The copper oxide unites with the cellulose to form an absorption compound which is soluble in ammonia. The bleached cotton linters or wood pulp are mixed with fine copperhydrate and the mixture dissolved in concentrated ammonia. The resulting blue solution should always have a uniform viscosity, also the same copper and cellulose content. The usual solutions contain 3 per cent copper, 7 to 8 per cent ammonia, and 7 to 8 per cent cellulose.

The next step is the filtration of the viscous solution to eliminate undissolved foreign matters, as the liquid in forming filaments is forced during the spinning process through minute orifices and any solid particles contained in the liquid would obstruct the passage causing the delicate fibres to break. For the same reason, air bubbles are removed by vacuum. The purified solution now arrives at the spinning machines, and is forced through fine holes called spinnerets into a setting bath of sulfuric acid or caustic soda. Some manufacturers are applying both chemicals, in the first stage caustic soda, and following, for the purpose of final settings, dilute sulfuric acid. Thereby fine filaments are produced similar to the nitro-cellulose process.

After the spinning, traces of chemicals must be entirely removed from the fibres by washing with water, because they would affect the subsequent drying. The next

and last operation is the bleaching which results in a purified white product that is very soft to the touch and possesses high luster. The yarn can be dyed by the application of direct colors, the same as are used for cotton. An important factor in this method is the recovery of the copper and ammonia which requires a separate chemical plant.

One of the methods developed which is used to-day is based on the experiment of Thiele in Germany. It is the "stretch spinning process," which resulted in the production of very fine filaments of a size as fine as, or finer than, the cocoon fibre. This improved cuprammonium process was used on a large scale before the viscose process was developed. In recent years most of the plants in Europe, which were using this system before, changed over to viscose method. The cuprammonium process was not used successfully in our country until now, but recently fortified by new improvements, it will be taken up by a foreign manufacturing concern.

Acetate Process.

Cellulose has the empirical formula $C(6)H(10)O(5)$ and probably contains three hydroxyl groups. By the treatment of cellulose with acetic two or three acetyl groups are introduced into the hydroxyl and the resulting derivative is called cellulose acetate or acetic ester of cellulose. This product is soluble only in organic solvents, for instance, acetone or chloroform, similar to nitrocellulose, which product, it is not soluble in water.

In 1894, C. F. Cross patented the first manufacturing process for acetate of cellulose. His process consisted of treating purified cotton with zinc acetate and acetyl chloride. In this country in 1905 Miles obtained a high-grade product by subjecting the cellulose acetate during its preparation to a special process of ripening. This method enabled the manufacturing of acetate fibres and of non-inflammable photographic films on a commercial scale. The research work of the brothers Dreyfus in England during the war, also in this country in recent years, resulted in the development of the acetate silk industry.

Bleached Linters Treated in Jacketed and Enamelled Vats.

Bleached cotton linters are treated in large jacketed and enamelled vats with acetic anhydride in the presence of glacial acetic and sulphuric acids until the mixture goes into solution. This process requires careful supervision, and several chemical control tests, as it is difficult to produce a homogeneous compound, and the process results then in the mixture of di- and tri-acetates. The resulting acetate is precipitated with water in form of white flocks, washed neutral dyed, and dissolved in acetone. Then clear viscous solution is filtered carefully and delivered under pressure to spin machines, where the spinning process is performed as previously described. The vapors of the solvents are removed, condensed, and used

HOUGHTON

LINE LOGIC

by Chas. E. Carpenter,

Near Editor

You will notice that "Cal" ends radical.

The better looking nurse you have for your child, the better police protection he will have.

The only time I was glad to be down and out was after my first and only trip in an airship.

The other night I called up my granddaughter and I said, "Florence, will you go to the football game with me tomorrow?" Then a female voice replied, "Sure, John, stop for me!" I replied, "This is not John," and she retorted, "This is not Florence."

The above are specimens of the funny cracks I try to make in two pages of *The HOUGHTON LINE*, which I publish each month.

Perhaps they are not so good, but compared with the stuff in some of the publications reputed to be funny; *Punch*, for instance, I think they are not so bad.

The HOUGHTON LINE has a larger circulation among industrial executives; is more generally and thoroughly read, and is more quoted and commented upon than any other publication covering the industrial field.

It is not mailed promiscuously to companies or firms, but only to individuals, on request.

All that is necessary to be placed on *The HOUGHTON LINE* Mailing List is to make your request in writing, stating plainly your name, P. O. Address, the name of the mill where you are employed and the class of goods they make. Over 135,000 industrial executives now receive *The LINE* and over a half-million have made the request as described above. Address:

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Oils and Leathers for the Textile Industry

over again in the preparation of solution.

The resulting filaments spun in groups are twisted in the usual way and placed on the market as cellulose acetate, unlike the products of the other systems in which the commercial fibres consist of pure cellulose. Acetate silk is sold in this country under the trade names of Celanese and Lustron.

The expensive chemicals like acetic acid and acetone are partially recovered during the process, but nevertheless this method is quite expensive and has not yet found a large application in the industry. The resulting yarns does not absorb moisture as readily as the other kinds of artificial silk, therefore it has less affinity for dyes. This property has so far prohibited its use on a large scale in the textile industry.

Viscose Process.

Of all the known methods rayon manufacture, the viscose process has found the widest application and is used on the largest scale in this country. About 90 per cent of the total present world production of rayon is made according to this method, and I will describe this modern manufacturing process from the chemical and technical standpoints. The viscose rayon is of the highest commercial value, and is used to-day in all lines of the textile industry. The research of Cross and Bevan regarding the compound of cellulose

with caustic soda and carbon bisulfide, known as the thio-carbonate of xanthate of cellulose, was based on a discovery made by John Mercer, an English calico printer, who in 1844 originated the mercerization of cotton while attempting to filter a solution of caustic soda through a piece of cotton cloth. He found that the cotton became swelled and a high luster and transparency were produced by soaking cotton with caustic soda solution of about 20 per cent at low temperatures. Later on, this process was developed commercially by mercerization of cotton cloth under tension, whereby the fabric became not only lustrous but also stronger.

First Introduced in Germany.

The viscose process on a commercial scale was introduced first in Germany in Sydowsaue by the Continental Viscose Company. The first successful results were obtained by the Societe Francaise de la Viscose at Arques la Bataille, France. Then in England, Courtaulds, Ltd., was founded in 1904, in Coventry and Flint with a capitalization of two million dollars. To-day it has more than one hundred million dollars capital and a yearly profit of more than twenty million dollars. This company also controls the largest plant of viscose silk in the United States. The original inventors of this system in England were Henry

G. Tetley, Sir Thomas Latham and Topham.

The raw material used for the viscose process is bleached spruce pulp or bleached cotton linters or a mixture of the two. The silk made out of pulp has a mild, not opalescent luster, and dyes more uniformly than thread made from cotton alone, because the latter is more highly polymerized complex and therefore more resistant and less active in chemical reactions than bleached sulfite pulp.

Pulp Cut in Rectangular Sheets.

Bleached pulp cut in rectangular sheets is soaked in an 18 per cent caustic soda solution at a constant temperature, this treatment causing the fibres to swell and form a compound known as soda cellulose. The excess of caustic soda is removed in hydraulic presses and, after reclaiming, is used over again.

It is very important to keep the strength of the solution, temperature and time of soaking uniform from batch to batch to obtain a uniform product. Also, the excess of caustic soda solution remaining in the cellulose should be constant, about two parts of solution to one of pulp. The sheets of soda cellulose are then ground in shredders, which are machines of powerful construction wherein rotation blades, operating against a grating, shred the soda cellulose to fine crumbs.

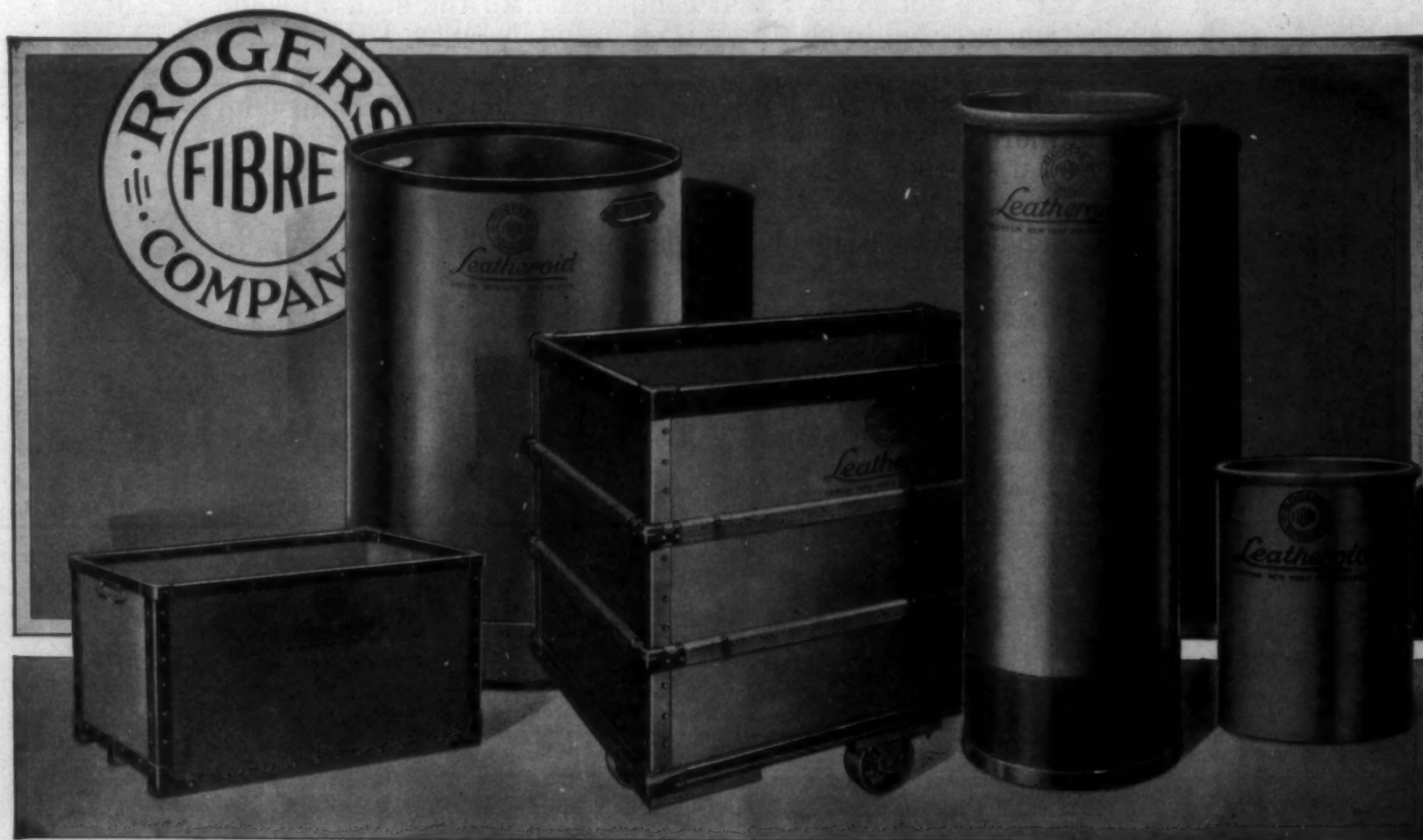
As soda cellulose undergoes fric-

tion during shredding, the excess heat is removed by brine circulation. This operation is also kept at a constant temperature. The shredded material is conveyed to small containers and undergoes a so-called aging process for a period of time, but always at a constant temperature. The properties of soda cellulose have been described before in connection with the definition of cellulose and its derivatives. The process of aging the soda cellulose is very important for the further treatment and spinning of the cellulose solution. The quality of pulp, its composition and the composition of soda cellulose are the fundamental requisites of artificial silk manufacture. During the aging process the length of time, the temperature and the volume of the containers are important factors, as they determine certain properties of the resulting viscose and the subsequent steps of the manufacture. The aging of soda cellulose can be accelerated by oxidation and there are several methods known which use catalysts for this oxidation.

Xanthation.

After soda cellulose has been properly aged it is transformed into xanthate of cellulose, a reaction similar to ester formation of cellulose.

This operation is carried out in double-jacketed, air-tight, iron containers. (Continued on Page 34)



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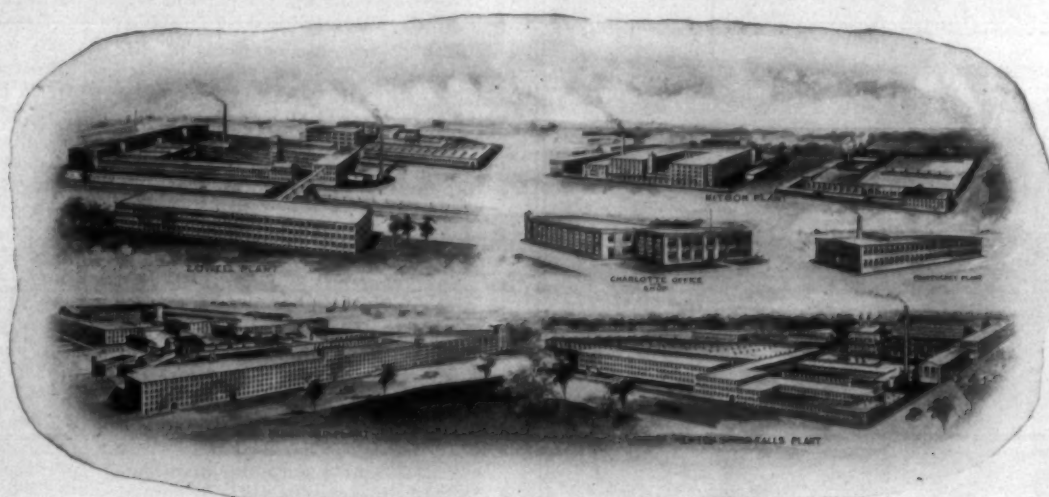
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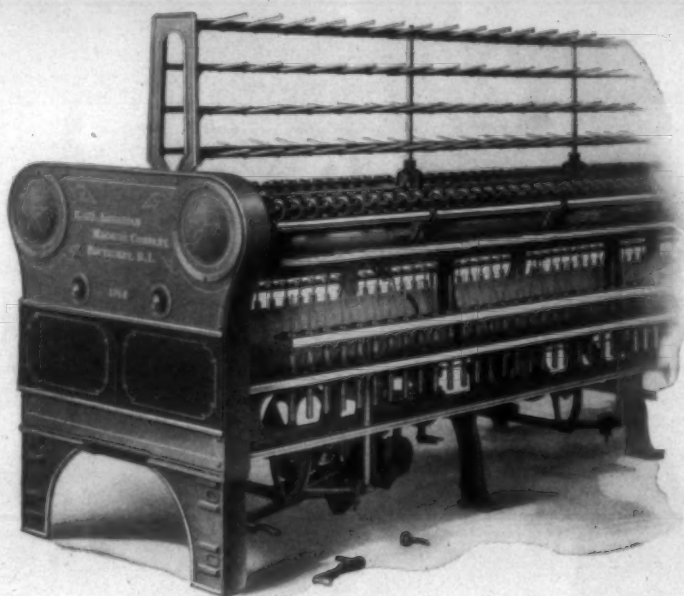
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American and British

Cotton-Cloth Exports

EXPORTS of cotton cloth from both Great Britain and the United States showed substantial increases during the first six months of 1925 as compared with the first half of 1924, and from each country were the largest since 1920.

Increase in United States Figures Larger than United Kingdom.

Total cotton-cloth exports from the United Kingdom during the first six months of 1925 amounted to 2,284,000,000 square yards, an increase of 60,000,000 square yards, or 2 per cent, over the first half of 1924. Exports from the United States during the first half of the current year totaled 274,000,000 square yards, a gain of 70,000,000 square yards or 34 per cent as compared with the like period of 1924. The only class of cloth showing a decrease in the British exports was unbleached goods, while the increase in this class was one of the largest registered in the American cloth shipments.

Manchester Industry Improving.

The states of the British cotton trade has not been wholly satisfactory during the first part of the current year, but it is undoubtedly in a far better position than a year ago, according to a report from Assistant Trade Commissioner C. Grant Isaacs. Manchester still feels the poverty in buying of some of its large markets—especially India and China—markets in which the prices of agricultural products have not advanced on a parity with imported goods and for which the export demand is restricted by the disturbed economic channels of world commerce. With relatively high values prevailing in the British cotton and cotton-goods markets, this economic condition in itself makes it imperative for the manufacturing trades to resort to some degree of short-time working.

British Exports of Cotton Cloth.

Comparing the British exports of cotton piece goods for the first six months of 1925 with the corresponding period of last year, shipments of bleached, printed, and dyed goods showed substantial increases but exports of gray goods contributed a decline of approximately 79,000,000 square yards. Not only did China and India reduce their purchases of gray cloth, but exports to Switzerland, Germany, Argentina, and the United States showed substantial declines. Egypt, however, took almost twice the quantity of gray goods and sales to the Netherlands East Indies, Straits Settlements, Turkey, and Australia were larger than a year ago. Egypt likewise has been a steady and potential customer for bleached and dyed goods. In bleached goods exports to all markets were 12 per cent larger than during the first half of 1924. Declines in exports to China and India were offset by increased takings in Egypt, Netherlands East Indies, Argentina, and other South American markets. In printed cloth, the

purchases by Bombay, Netherlands East Indies, Argentina, British West Africa, and Iraq accounted largely for the total increase of over 300,000,000 square yards. Brazil took 24,000,000 square yards of dyed goods, as compared with 12,000,000 a year ago, and other important South American markets took larger quantities. Australia and the Netherlands East Indies purchased about the same quantities, but exports to China and India recorded declines.

Increase in All Classes of American Cloth Exports.

All classes of cotton cloth showed an increase when comparing the American exports during the first half of the current year with the corresponding period of 1924. Gray cloth and printed goods, the two largest classes, each showed an increase of about one-third; bleached and yarn-dyed about one-fourth; and piece-dyed approximately one-fifth over shipments a year ago. Gains were made in exports of gray cloth to China, India, and several other markets in which British exports of gray goods registered a decline. American cloth of this class showed an increase of over 5,000,000 square yards in exports to the Near East, Balkans, Egypt, and Aden; 4,000,000 to South America; 1,900,000 to Jamaica; and 1,000,000 each to Central America and Haiti. The increase of 11,000,000 square yards in the exports of bleached goods is accounted for principally by the larger amounts sent to the Philippine Islands and Latin American countries. Exports of printed goods were greater by 18,000,000 square yards, due largely to the 10,000,000 increase was registered in most of the important markets for piece-dyed cloth. Larger amounts of yarn-dyed goods sent to the Philippines, Haiti, Argentina, and other Latin American countries account for the increase of 14,000,000 square yards in the exports.

Philippine Islands Largest Market for American Cloth.

The Philippine Islands constituted the largest market for United States exports of cotton cloth during the current year, followed by Cuba, Colombia, Canada, Chile, and Mexico, in the order named. Shipments showed more than 60 per cent increase in the case of each of these countries with the exception of Cuba and Canada, both of which continued to take smaller amounts and registered a 10 per cent decrease as compared with the first half of 1924. Exports to the Philippines were made up largely of printed and bleached goods, although shipments of gray cloth to that country were more than double the amount sent a year ago. Almost one-half of the cloth exports to Colombia consisted of printed goods; two-thirds of the shipments to Chile, gray cloth; and two-thirds of the shipments to Mexico, piece-dyed and printed goods.

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The Manufacture of Fancy Yarns

WHILST the twisting of plain yarns has for its object the strengthening of the yarn, the production of fancy yarns is in many cases accompanied by a reduction of the strength. The fancy effects may be obtained either in the spinning processes or in the twisting (doubling) processes. The so-called "nep yarns" and the "grandrelles" are examples of spun fancy yarns, whilst mock grandrelles, embroidery yarn, grimp yarn, spot yarn, flake yarn, tuft yarn, clouded yarn, snarl yarn, loop yarn, and many other more complicated fancy yarns, are examples of twisted fancy yarns. Of the latter, some do not entail a reduction of the strength, the effect being obtained by merely twisting yarns of various colors together in the ordinary way, such as in the case of grandrelle yarn.

Of the more elaborate types of fancy twists, some may be manufactured in one single process, whilst others may require a second twisting in the reverse direction in order to fix the effect by means of a binding thread. Other kinds of fancy yarn show no marked effect at all after the first twisting, the characteristic effect coming out only after a supplementary twisting in the opposite direction.

The effects may be due to the colors employed or to appendages, such as nep, knop, spiral, loop, snarl or

other effects. The size of the appendages, their distances apart, their general arrangement, and the continuous or intermittent application, all tend to vary the effect, not to forget the result of the employment of yarns of various kinds, counts, twists, etc.

Grandelle Yarns.

Grandelle yarns are spun in a spinning frame in which soft rovings of different colors are run together so as to produce a yarn showing a peculiarly marled effect. This class of yarn can be made on any spinning frame, but, of course, provision must be made for double roving to be put up in the creel.

This effect is obtained by running together two ends of spun yarn of different colors in the twisting frame, the effect being of a certain hardness in appearance, but in many cases sufficient for practical purposes. In fact, in many cases the mock grandelle effect creates a peculiarly agreeable effect in certain classes of piece goods. This kind of yarn can be made in the ordinary doubling frame having a single line of bottom rollers with its corresponding top rollers, one to each spindle. It should be noted, however, that the manufacture of a mock grandelle of good quality is by no means easy, for the slightest irregularities show up badly in the finished yarn. Above all, the single

yarn must be very even, and the single ends must also have the same turns per inch, and they must be twisted in the same direction. Moreover, the pigtail guide above the spindles must be as near to the roller nip as possible. In order to obtain even tension on the single ends, it is advisable to fold the single ends on a doubling-winding frame with plush drag, taking care that the latter is not worn.

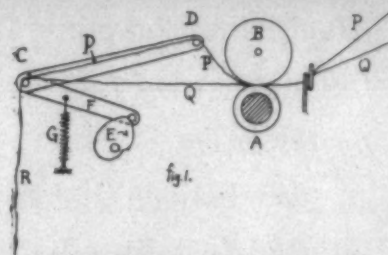
Embroidery Yarn.

Another kind of fancy yarn which can be made in an ordinary ring doubler is embroidery yarn, for which two ends of yarn of different

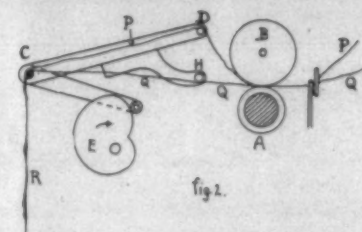
As a rule, the second twisting is effected in the same machine, without turning the spindle hands, by merely turning the driving belt or the corresponding rope, and inserting a carrier wheel into the gearing from the driving shaft to the rollers.

Clouded Yarn.

Clouded yarn is another type of fancy yarn which can be made with very simple mechanism. The idea is to show the color of the fancy thread more or less distinctly in different places on the ground yarn, the effect being obtained by retarding the delivery of one of the threads in certain places. The simplest mechanism for the purpose is



colors are twisted together as usual, say, with about 8 turns per inch. The resultant yarn is afterwards twisted in the opposite direction, together with a third thread, the latter being usually single, the number of turns being exactly the same as employed for the first doubling.



that shown in Fig. 1, where A is the bottom roller and B the top roller. The two threads, P and Q, which go to make the clouded yarn, pass through the nip of these rollers, as shown. The doubled thread R does

(Continued on Page 31)

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James B. Duke Dead

JAMES B. DUKE, tobacco manufacturer and founder of the Southern Power Co., died Saturday at his home in New York after an illness of several weeks that followed a nervous and physical breakdown.

Mr. Duke had fallen into a state of coma after several days of fighting for life. At times he showed such improvement it was thought he would recover.

He is survived by his widow, who was Miss Nanaline Holt; a daughter, Miss Doris Duke; a brother, Benjamin Newton Duke, and a niece, Mrs. Anthony Drexel-Biddle Duke, who before her marriage was Miss Mary Duke.

Funeral services were held at the New York home Monday afternoon at 4 o'clock. The body was taken by special train to Durham, N. C., where interment took place Tuesday morning at 11 o'clock in the family mausoleum.

For several years Mr. Duke had not taken an active part in the conduct of the many enterprises in which he was interested. Actual management was entrusted to men he had trained, although he frequently went to his New York office and kept in close touch with business matters.

Mr. Duke always maintained close relations with the farmers whose products he purchased. In his early years as a tobacco manufacturer he instructed his buyers to pay the farmers enough for their crops to assure them a living notwithstanding market conditions.

He became extensively interested in the development of hydro-electric power and established many large plants in sections of his native State of North Carolina. Recently he spent large sums in an effort to discover a method of producing cheap fertilizer for the benefit of the farmer.

Last year he established the Duke Foundation, setting aside \$40,000,000. Under its terms Trinity College at Durham, N. C., changed its name to Duke University, and an active program of expansion was begun.

James Buchanan Duke was born in 1856 near Durham, N. C., and received his education in the country schools. His first connection with the tobacco industry began a few years after the Civil War when his father, Washington Duke, established the plant which proved to be the nucleus of the huge tobacco firm in later years.

Mr. Duke was in a large measure responsible for the tremendous textile development in the Piedmont Carolinas during the past 25 years. He first became actively interested in the industrial development of the Carolinas in 1904, when he became a factor in the Catawba Power Company, which had been organized by Dr. Gill Wylie and associates to build a 10,000 horsepower plant on the Catawba river.

Through Dr. Wylie and W. S. Lee, then engineer for the Catawba Power Company, Mr. Duke undertook to develop the power from the Catawba River on a much larger

scale than was originally proposed, the result being the formation of the Southern Power Company in 1905, which absorbed the Catawba Power Company.

When the Southern Power Company began its development, cotton mills in the Carolinas were few in number and most of them were small and operated only on coarse yarns and goods. Only 13 mills, with a total of less than 150,000 spindles, were supplied with power by the company in 1905 and the existing mills were slow to avail themselves of the new power.

Mr. Duke, however, with a vision of the possibilities of a great hydro-electric development, steadily expanded his plants and assisted in the promotion and financing of many mills. In most instances, he disposed of his interests in the mills as soon as they were firmly established.

Today the textile industry in the Carolinas has more than 11,000,000 spindles and the great power system established by Mr. Duke drives more than half of these spindles. By common consent in this section Mr. Duke is given credit for the fostering and encouraging of the industry in this section to a larger extent than any other man.

During the years that Mr. Duke poured his millions into the building of the great power system that has made for such an enormous industrial development in this section, it is noteworthy that he never withdrew one cent from the company in dividends.

R. M. Miller, Jr., Dead

R. M. Miller, Jr., of Charlotte, for years one of the leading cotton manufacturers of North Carolina, died suddenly from heart failure in Atlantic City last Sunday. He was 69 years old.

Mr. Miller, after graduating from Davidson College, began his textile career as a young man in the employ of the D. A. Tompkins Company, of Charlotte, manufacturers of textile machinery. He later resigned his connection with that company to organize and build the Elizabeth Mills, of Charlotte. He very successfully operated this mill for a long period of years. Some years ago he sold his interest in the Elizabeth Mill to the Robinson-Rankin interests of Gaston county and retired from active business.

Mr. Miller was prominently identified with the work of the American Cotton Manufacturers' Association for many years, serving a term as president, and in addition being chairman of the Tariff Committee. He was regarded as one of the best informed men on the textile tariff in the South and did extremely valuable work in assembling tariff information for the association. He also was a former president of the Cotton Manufacturers' Association of North Carolina.

Mr. Miller is survived by his wife and one daughter, the latter being the wife of D. Wills Hunter, formerly with the Southern office but now with the Boston office of the Saco-Lowell Shops.

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Practical Discussions

By

Practical Men

Answer to Second Hand.

Editor:

Warps should not be slashed bone dry. On the other hand they should not come off the slashers damp. There is a difference between dampness and a reasonable moisture. There is some difference between a properly moistened warp and a bone dry one. An over-dried warp will have a tendency to crumble the starch off the yarn, thus leaving a baked yarn unprotected. An average of 8 per cent to 10 per cent of moisture will cause the sizing materials added to the yarn to cling—not stick—but without making it brittle. The yarn will also be stronger and not fragile when it contains 8 per cent of moisture. Therefore yarn should not be over-dried on the slashers. Rahab.

New Slasher Needed.

Editor:

I am considered a good overseer of slashing in a fairly good sized mill. I need a new slasher, because I can't get the extra production wanted on what slashers I now have. But the company will not get one. Can one of your question answerers show me how to increase the output of my slashers without impairing the good service that I have been known to give?

W. T. D.

Answer to Learner.

Editor:

The diameter of No. 50s yarn is close to 204-100 of an inch in diameter. The rule for ascertaining the diameter of yarn is to multiply the yarn number by the constant number 840 and then extract the square root of the product, thus:

$$840 \times 50 = \sqrt{4200} = 204.1000$$

Student.

Making Colored Goods.

Editor:

In starting a new mill for making colored goods, what would you advise making to start? If any of your readers would care to discuss this subject before we go further into this matter, we would appreciate the discussion on this subject. Capital.

Answer to Learner.

Editor:

In reply to the question asked by "Learner" in the October 8th issue of the Bulletin, the diameter of yarn will vary with the density as

well as the weight, so it is not practicable to find the exact diameter of yarns by calculations from the weight. However, the following rule will answer all practical requirements:

Rule—Multiply the counts by 840 and extract square root of the result. The reciprocal of this number will express the diameter of the yarn in practical part of an inch. Ex-Spinner.

Gear Changes.

Editor:

In making changes from one number to another, we figure all gears by the number of teeth they contain. We have some gears that are larger in diameter than others, but have the same number of teeth.

Could some of your readers tell me whether this makes any difference in the amount of stock dividend or twisted.

These gears mesh up and apparently run O. K. Some of these gears are one-quarter inch larger than others, but have the same number of teeth. D.

Miss Langston is Prize Winner.

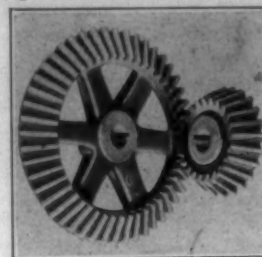
It was Miss Mary Langston, of the Victor-Monaghan Mills, Greenville, S. C., who won the Girls' Sweepstakes prize in the dress making contest held at the Carolinas Exposition in Charlotte and not Miss Ollie Thomas, as first reported.

We are glad to make this correction in justice to Miss Langston. The name of Miss Ollie Thomas was prize winner was given us by the Exposition officials immediately after the contest was decided and we did not know of the error the officials made until notified this week. The photograph published was that of Miss Langston. We regret very much the error made in announcing the prize winner and take this opportunity to congratulate Miss Langston.—Editor.

Textile Colorists and Chemists Meet

Approximately 70 textile colorists and chemists from mills all over the South gathered here Saturday night for the convention of the Southern section of the American Association of Textile Chemists and Colorists. The meeting was opened with a dinner at the Poinsett Hotel.

A feature of the evening program was an address by Dr. Charles H. Herty, president of the Synthetic and Organic Chemical Association, who spoke on "The American Dye-stuff Industry." Dr. Herty, who was formerly head of the chemical de-



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partment of the University of North Carolina, later going to New York, is recognized as one of the leaders in the science of chemistry in this country. An address was also made by R. W. Arrington, superintendent of Union Bleachery. Mr. Arrington's subject was "Dyeing and Finishing of Woven Fabrics Containing Rayon." His address appears elsewhere in this issue.

The American Association of Textile Chemists and Colorists is an organization made up of representatives from textile dye plants and laboratories from all sections of the United States. It is divided into five divisions, the Southern section embracing most of the Southern States. H. M. Chase, superintendent of dyeing at the Riverside and Dan River Cotton Mills of Danville, Va., is president of the Southern branch. P. F. O'Neal, of Chattanooga, is treasurer, Charles H. Jones, of Charlotte, is chairman of the arrangements committee.

Crop Estimate Nearly 15,000,000 Bales

Washington, Oct. 8.—An indicated total production this year of 14,759,000, equivalent to 500-pound bales of cotton, of which 7,101,710 running bales, counting round as half bales, had been ginned prior to October 1, was announced today in the consolidated cotton report of the Department of Agriculture and the Census Bureau.

The crop reporting board made the following comment:

"Reports unite in indicating a larger cotton production in most of the cotton belt than has previously been reported, even as late as the middle of September. The October 1 indication of 14,759,000 bales of 500 pounds gross weight is 828,000 bales larger than that of September 16, and 1,019,000 bales above that of September 1.

"The chief cause of the improved prospect is that September rains have revived drought-stricken plants to an unexpected extent, especially in regions west of the Atlantic States. This rainfall has even benefited many plants that had been regarded as hopelessly damaged. Since rains broke the drought in Texas, a considerable cotton acreage that looked as though it might be abandoned has revived and will be picked. Pickings are indicating better yields than was expected two weeks ago in a large portion of the belt.

Rain Saves Bolls.

"In many localities rains have reduced the grade of open cotton. On the other hand, the rains tended to stop premature opening of bolls, and in the western part of the belt increased the size of immature bolls. Throughout most of the belt, bolls have been a scarcity of pickers, so that much cotton is opened and unpicked and subject to damage and loss in case of unfavorable weather.

"The boll weevil has not caused as much loss to the crop this year as was anticipated earlier in the

season. The long drought was unfavorable to the survival and propagation of this pest. Leaf worms have lately appeared in many places but it is too late for them to do much damage.

Frost Dangers.

"Considerable cotton production along the northern part of the belt depends on the date of first frost. In Oklahoma the rains of the early part of the month caused new bolls to set, and the final outturn in this State is very uncertain, depending upon whether the late bolls mature. In Texas the crop in the western third of the State is late, and early freezing would cause a heavy loss."

The indicated production by States follows:

Virginia, 48,000 bales; North Carolina, 1,150,000; South Carolina, 850,000; Georgia, 1,065,000; Florida, 36,000; Missouri, 240,000; Tennessee, 465,000; Alabama, 1,220,000; Mississippi, 1,750,000; Louisiana, 836,000; Texas, 3,875,000; Oklahoma, 1,540,000; Arkansas, 1,400,000; New Mexico, 60,000; Arizona, 94,000; California, 114,000; all other States, 17,000; Lower California, Old Mexico (not included in United States total), 75,000.

Ginnings prior to October 1, counting round as half bales and excluding linters, compared with 4,527,668 to that date in 1924. Ginnings by States included North Carolina, 392,970, and South Carolina, 536,752.

Some increased prediction of cotton in foreign countries this year over last year is indicated in re-

ports received, the Department of Agriculture announced today in a world cotton review.

Latest forecasts of production in Egypt, Russia, Chosen, Lower California and the Laguna district of Mexico, the Department said, total 2,886,000 bales, compared with the estimated yield last year of 2,301,000 bales. When the forecast of production in the United States, as of October 1, is added to the estimates of these countries, the total of latest forecasts amounts to 17,645,000, against an estimated production last year of 15,929,000 bales, the department reported.

German Cotton-Cloth Trade Smaller

Although cotton piece goods continues to be the most important item of cotton textiles imported into Germany, receipts of foreign cotton cloth fell off almost one-third in the first half of 1925 as compared with the like period of 1924. This decline is due entirely to the falling off in imports from Alsace-Lorraine, which dropped from about 8,000 metric tons during the first six months of 1924 to less than 4,000 in the corresponding period of 1925. Cotton piece goods accounted for about one-fourth of the total exports of cotton manufactures and amounted to 9,280 metric tons during the first half of 1925. (Consul Christian T. Steger, Dresden, and Assistant Commercial Attache Douglas Miller, Berlin.)

RAYON REEDS

On account of the ever-increasing use of Rayon (artificial silk) by Southern cotton mills, we are making a reed particularly adapted to the Rayon yarns.

Special attention is necessary to the finish on the wire used in these reeds, which finish requires approximately three times the length of time usually given to regular reed wire.

There is, however, absolutely no extra charge for this special finish as we invoice Rayon reeds at our regular standard prices.

STEEL HEDDLE MANUFACTURING CO.

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SOUTHERN PLANT

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Drop Wires (with Nickel Plated, Copper Plated or Plain Finished).

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Barber Spinning & Twister Tapes

It pays to specify BARBER tape when renewing your tape supply. QUALITY, the outstanding feature, is emphasized. But you get this QUALITY combined with fair prices and years of "knowing how" all put together. Standards from which we do not shift assure you of satisfactory service year in and year out. Pioneers as spinning and twister tape makers we still maintain our enviable reputation as "Spinning Tape Specialists." Made in the South for Southern Spinners.

BARBER MFG. COMPANY
CHARLOTTE, N. C.

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In the midst of the shopping, theatrical and business centres of uptown New York, the Hotel Martinique offers a convenience that is unusual.

Via enclosed subway, you can, without even stepping out-of-doors, go direct from the Martinique to any place in New York—or the United States for that matter—as you can quickly reach Grand Central or Pennsylvania Depot by subway.

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Affiliated with Hotel McAlpin

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Comments of the American Wool & Cotton Reporter

THE following are interesting extracts from the last issue of the American Wool and Cotton Reporter of Boston, Mass.:

A Southern textile bulletin complains because of our recent series of articles on the fraudulent sizing compound business. Perhaps the reason for that complaint is that this Southern textile bulletin may be carrying the advertisements of a lot of fraudulent sizing compounds, and if so, is receiving money from a fraudulent business, and may be helping to pilfer the mills that it is supposed to serve. Now that we have made public the fraudulent features of the sizing compound business, it may be that the publisher of this Southern textile bulletin has had to make the decision as to whether or not he will refuse to carry the advertising of these sizing compound frauds, or whether he will continue to be a procurer for them, it may be that his decision is, get the money from the fake sizing compounds rather than give honest service to the Southern cotton manufacturing industry.

The Sizing Compound Business.

Article VI.

Under the title, "Those Who Live in Glass Houses," the Southern Textile Bulletin of Charlotte, N. C., panders to the sizing compound makers by publishing the following:

1. One of the New England textile journals is devoting much space to attacks upon the products of certain manufacturers of sizing compounds.

2. They claim to have an expert chemist, but it is rather remarkable that the chemist finds the defective products to be manufactured almost exclusively by those who do not advertise in the journal of his employer.

3. Mill men that have been using many of the sizing compounds and obtaining splendid results will be surprised to learn that there is no merit whatever in them and that in spite of years of experience in cotton manufacturing they did not have intelligence enough to know whether or not their work ran good and that they were obtaining good results.

4. A textile journal sells advertising based upon circulation just as a sizing compound manufacturer sells sizing based upon its ingredients.

5. Two years ago the journal mentioned was selling advertising based partly upon a claim of 63 subscribers in Oklahoma, a State that only had one 5,000-spindle mill, and upon similar lists in some other States.

6. It is rather difficult to imagine a 5,000-spindle mill furnishing 63 subscribers for one textile journal and under such circumstances there was at least a suspicion of water in circulation just as they now report water in sizing.

7. While the chemist is picking motes out of the eyes of sizing compound manufacturers, he might stop long enough to determine whether or not the mote picker is

selling his goods upon any better basis than he alleges to be the practice of the non-advertiser sizing compound manufacturers.

8. Those who live in glass houses should not throw stones, even though they carefully refrain from directing any of the stones towards their friends.

The above, printed in the Southern Textile Bulletin, looks like dirty business—but we cannot be sure of that because we ourselves have no acquaintance with dirty business. It refers to the series of articles published in the American Wool and Cotton Reporter on sizing compounds. We want to take up this bilious editorial of David Clark's, paragraph by paragraph, but briefly.

The first paragraph of the above is incorrect in stating that the American Wool and Cotton Reporter is devoting space to attacks on alleged sizing compounds of certain manufacturers. It isn't quite right to call them "attacks." Our sole intention is to dig out and publish the facts regarding the sizing compounds. If they are good compounds, and our chemical analyses prove that they are good, there surely can be no attack in that. The whole thing is an investigation, rather than an attack.

It isn't right to call them "certain sizing manufacturers," because we intend the series to cover all manufacturers of so-called sizing compounds.

We Have an Expert Chemist.

The second paragraph is not quite correct in stating that we "claim" to have an expert chemist—the fact of the matter is that we have an expert chemist.

Not only an expert chemist, but in this sizing compound investigation we have had the full co-operation of the ablest chemical organization in the whole textile industry—an organization whom we could not have hired for thousands of dollars, but which was put at our disposal by a great organization interested, as we are, in driving out the dishonest sizing compound business for the benefit of the textile manufacturing industry.

It isn't remarkable that the chemist finds the defective products to be manufactured exclusively by those who do not advertise in the American Wool and Cotton Reporter—for that is the fact. Many of the sizing compounds are sold on misrepresentation, many of them on graft, and it isn't to be wondered at that those products are not advertised in the American Wool and Cotton Reporter. It would be remarkable if they were advertised in our paper. We don't want advertising which is solely a blind for graft, and furthermore, we don't need it.

Compounds Not Sold on Money Value Basis.

The third paragraph is not correct, and we will prove it this way. We dare David Clark to give us the name of any mill men who have been using the same sizing com-

pound for any length of time, or to give us the name of any cotton manufacturer who has not been changing from one sizing compound to another with the regularity of clockwork, looking for a satisfactory sizing compound; or we suggest to David that he get some of these satisfied cotton manufacturers to send us a sample of their "satisfactory" sizing compound, so that we may analyze it. We have never said that some of these compounds which we have analyzed won't give satisfactory results—we think that we have said that some of them would give satisfactory results, but we haven't publicly analyzed one yet—as we remember it—that was sold on a money value basis. We never have said that the mill men didn't have intelligence enough to know whether or not their work ran good. David puts those words into our mouth. There is no doubt in the world but that many of them do run good, and all we object to is that some of those that we analyzed which will run good, cost 2 cents a pound to make, but are sold to the mill for 10 cents a pound, and that some of those that run good are sold to one mill for six cents, and to another for 12 cents. We want to see the whole business on a money value basis.

As closely as we can make out, there are something more than fifty manufacturers of sizing compounds and alleged sizing compounds. A certain proportion of these materials are absolutely and utterly fraudulent. The manufacturers of them have gone into the business for the sole purpose of defrauding textile corporations by selling worthless, or nearly worthless, compounds to purchasers who do not know any better than to buy them.

A few years ago, we were in a great textile manufacturing city, and in the hotel one night we met a sizing compound salesman of our acquaintance. He told us that he was going to call on this mill and that mill in the city, and we asked if he intended to call on such and such a mill—naming one of the greatest in the industry—and he said, "No. I don't go there—they have a chemical department and buy everything on the basis of analysis." It is a fact that cotton manufacturers change from one sizing compound to another, because they—individually—haven't yet been able to find one that they know to be satisfactory. This statement, of course, is subject to considerable amplification. There are mills wholly satisfied that the sizing materials they are using are 100 per cent in every way, shape and manner, and there are concerns manufacturing sizing materials that are absolutely reliable and give money value. We know it for a fact, however, that the great majority of cotton manufacturers are afraid of the sizing compound business, and believe, with us, that the whole thing needs reorganization—and since we began to publish these sizing analyses, we have had scores of letters from such manufacturers, testifying to the fact.

The fourth paragraph of David's

editorial is incorrect in some cases. Some textile journals do and some do not sell advertising based upon circulation—there wasn't one sizing compound that we have analyzed that was sold by "the sizing compound manufacturer upon its ingredients." So far as we have been able to discover on those we have analyzed, they were sold on hocus pocus.

The fifth paragraph may be correct or not. We haven't looked it up. We can only say that the American Wool and Cotton Reporter circulation is audited by the same people who audit David's circulation. The only circulation statement that the American Wool and Cotton Reporter has made were those based upon the audits referred to. As a matter of fact, David tells an untruth when he says that the American Wool and Cotton Reporter claimed 63 subscribers in Oklahoma two years ago. We claimed 43 subscribers in Oklahoma, and David Clark, with the Southern Textile Bulletin, claimed just one subscriber in that State, although he says that there is a 5,000-spindle mill there.

We are not proud of the fact that we have only 43 subscribers in Oklahoma—if that is the correct number. We ought to have a good many more than that. There is, as David says, a cotton mill in Oklahoma—but David would have his readers believe that that is all the textile manufacturing there is in that State. According to Lord & Nagle's Textile Directory, there are 17 textile manufacturing establishments in Oklahoma. On the date referred to, two years ago, the American Wool and Cotton Reporter had 43 subscribers in Oklahoma, and David Clark had just one. And another textile paper had three subscribers in that State. With 17 textile manufacturing establishments, the American Wool and Cotton Reporter had 43 subscribers—nothing to be proud of, for we ought to have had at least 170. But our chagrin in that matter is somewhat mitigated by the fact that another textile paper had only three subscribers, and David had only one. And in addition to those 17 textile mills, in that State, there are several hundred cotton dealers—as listed in Lord & Nagle's Directory. We ought to have some subscribers amongst those cotton dealers. The fact of the matter is that we didn't claim 63 subscribers in Oklahoma, and David tells an untruth there, but the audit association shows that we had 43—where we ought to have had three or four hundred. We are not the liars that David tries to make us out—but we are ashamed of the condition just the same.

Right in David's own territory, the Southern textile manufacturing States, we claimed 2,806 subscribers, and David claimed 2,713. Right in his own territory more people subscribed for the American Wool and Cotton Reporter than for the Southern Textile Bulletin. In building circulation for the American Wool and Cotton Reporter we use absolutely no premiums or gifts or chromos. The American Wool and

(Continued on Page 30)



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102-G

Notice To Cotton Trade

You have observed the rapid growth of the Chicago Cotton Market—not yet a year old. This market was created to fulfill a definite need. How well it is succeeding may be seen in its rapidly increasing number of friends.

Chicago's contract is basically sound. Advantages offered are numerous. To further strengthen and clarify this contract changes are made as they become advisable.

Recent amendments will interest the cotton trade. One provides that delivery notice must specify a Galveston or Houston bank where the seller will make delivery. If no bank is designated delivery must be made at the Chief Cotton Inspector's office in the delivery city. Payment is in Chicago funds unless otherwise agreed. When seller or buyer notifies the Cotton Registrar at Chicago that he represents a non-member principal such principal may make or take delivery. But the member in whose name the contract was made is liable until it is fully performed.

By another amendment the seller within 48 hours must deliver to the buyer a duplicate sample of each bale invoiced. Otherwise he must pay one dollar for each sample lost.

Still another amendment stipulates that with all deliveries the seller must submit, with the invoice, railroad freight bills showing payment of inbound freight on an equivalent amount of cotton. Freight bills must not be endorsed limiting concentration and must have at least thirty days to run before expiration.

Full details about Chicago's remarkable cotton contract may be had by writing the Cotton Registrar, Chicago Board of Trade.

CHICAGO BOARD OF TRADE

Bleaching, Dyeing and Finishing Cotton Fabrics Containing Rayon

Address by R. W. Arrington, Superintendent of the Union Bleachery, Greenville, before meeting of Southern Section of American Textile Chemists and Colorists.

THE phenomenal development of artificial silk, or, as it is now called, 'rayon', in the last few years makes it almost impossible to treat a subject of this kind in a broad way because of the vast multitude of fabrics and combination fabrics made wholly or partially of rayon. Different patterns or different fabrics might take slightly different treatments, due to the nature of the fabric and the use to which the particular fabric will be put. I believe, however, a cotton shirting or underwear fabric containing rayon stripes will be sufficiently representative to enable us to derive some good from a discussion of the bleaching, dyeing and finishing of the particular fabric.

Must Understand Others' Problems.

"In this day and time it is becoming more and more necessary for each person in the chain of distribution to understand more thoroughly the problems that others in the same chain encounter, especially is this true in the handling of cotton fabrics containing rayon. There is a decided responsibility on the part of the converter, the gray mill and the finishing plant, and the proportionate part of this responsibility must be fully and cheerfully shouldered by each one if the best finished results are to be secured.

"It is my opinion that in the production of the proper finished article the responsibility on goods containing rayon lies about one-eighth with the converter, three-eighths with the gray mill and one-half with the finishing plant. It seems to me that that is about the way it lines up today, which means that the manufacturer of the rayon itself is entirely left out of the problem.

"I am not sufficiently familiar with the operations in the rayon manufacturing plant to state what his responsibility should be, but certainly it is reasonable to suppose that he has troubles and bad work of one kind or another, due to temperatures getting too high or too low, or to acid baths getting too strong or too weak, or in other ways which would cause his product possibly to look all right, but to have certain defects which would not show up until the goods were subjected to chemicals used in the process of bleaching. As that, however, is a responsibility which cannot be definitely fixed at this time, certainly not by me, we must leave that feature entirely out of our consideration, and think only of the converter, gray mill and finisher.

"A person may ask, in what way does the converter enter the problem? Briefly, in this way: His one idea naturally is to produce an attractive fabric that will sell. He is rather prone to think little of what troubles the gray mill will have in

weaving or of the finishing plant in finishing, but those things should be carefully considered in the designing of the fabric.

Tension Called Big Problem.

"If the floats in the rayon stripes are too long or not properly tied down, it is quite probable that when tension, even though only a small amount of tension, is put on the fabric in finishing, the rayon stripe is more than apt to break. The gray mill should endeavor to use its influence with the converter with a view to having him consider this matter carefully in the designing of his fabric, because the mill is almost as much interested as the finishing plant in producing good finished results.

"Most of us are familiar with the one big problem of the mill in the weaving of goods containing rayon. That problem is the one of tension between the cotton yarns and the rayon yarns. This matter of tension has probably been responsible for more trouble in finishing than any other one thing. This is due to the fact that in finishing the cotton yarns will stretch, while the rayon yarns have practically no resiliency.

"One of the most important things for the finisher who handle rayon striped goods to do is to give these goods the proper gray inspection before the finishing is started.

This may save him a great deal of trouble later on.

"It is hardly possible, at least it is not practical, for a finisher to inspect every single piece of gray goods but he can inspect a sufficient number of piece to satisfy himself that the lot as a whole runs satisfactorily. Of course we all realize that every loom is a separate unit and it does not by any means follow that because some pieces from a certain mill are satisfactory all pieces are satisfactory, nor does it mean that that because in some pieces the rayon is too tight that all goods from that mill are too tight.

"It is reasonable to suppose, however, if a sufficient number of pieces are examined and found to be all right, that the lot as a whole will be satisfactory.

"Simple methods for this inspection should answer the purpose. One is to look at the creases where the yarding machine blade has folded the piece, and see if a sawtooth effect is noticeable. By that I mean that if the silk is too tight the silk threads will be drawn in on these creases, giving this so-called saw-tooth effect. Another simple and possibly better way is to run one's finger into the fold and pull them toward the selvage.

5 Per Cent Difference Not Excessive.

"If the rayon is tight a decided cord effect will be noticed when the fingers pass over the rayon stripe.

Another way is to take a small section of cloth, say six inches in length, cut the threads so as to remove carefully one of the rayon threads, then do the same thing with a cotton thread and see the difference, if any, develops in the lengths of the two threads.

"A difference of 5 per cent is usually not considered excessive. If the goods are found to contain tight rayon they should be held out of process and the customer notified.

"This question of tight rayon is one that should have very close co-operation between the mill and the finisher. In recently handling with a gray mill the question of certain pieces of goods in a lot containing tight rayon the mill man stated to me that he knew the goods contained tight rayon and that they had been put aside by him and invoiced to his customer as seconds. He seemed to think that by so invoicing the goods he had assumed all the responsibility to which he was justly entitled. The average person would also probably agree with him.

"The fact remains, however, that when seconds are invoiced to a finishing plant, the finisher assumes that there are probably weaving imperfections, oil spots or things of that kind that has necessitated the classing of the goods as seconds. In this particular case the goods were not invoiced to us as seconds, but even if they had been we would have assumed one of the defects just mentioned. If goods contain tight rayon the mere classing of these goods as seconds does not make it any easier for the finisher to prevent the breaking of the rayon.

Method of Classifying.

"It is my opinion that such goods should not be classed as seconds, but should be classed as containing tight rayon and so invoiced to the finishing plant. If the finisher then wants to assume the responsibility after inspecting the goods he of course is at liberty to do so. If he does not care to assume such responsibility, he can so notify his customer and the customer can then assume that responsibility if he feels so inclined. In any event the finisher is informed that the goods do contain tight rayon and can therefore be particularly careful in their handling.

"The bleaching of goods containing rayon, as stated, is quite similar to the bleaching of all cotton goods. There are two main considerations for the finisher to keep constantly in mind in the finishing of rayon striped goods, and they are first of all to do nothing that will have a tendency to break the rayon. When rayon is broken by the finisher it is usually done in the bleaching process and, therefore, while the goods are in the rope form.

"You are doubtless familiar with the fact that rayon, when wet, has practically no tensile strength, and therefore, care in handling, while the goods are wet, cannot be too strongly emphasized. The other big problem for the finisher is to put nothing in the goods when starching or finishing that will affect the luster of the rayon. The rayon stripe is put in because of its luster, to beautify

the fabric, and if, therefore, anything is done to the goods to deaden the luster of the rayon, the finisher has fallen down in producing one of the main results desired in finishing the goods. If, therefore, these two main points are kept constantly in mind during the bleaching and finishing processes, very little trouble need be expected.

"The goods are first sewed together into continuous lengths, and sometimes put over a singer for a light singeing. If it can be avoided, it is better not to singe the goods because it is very easy to damage rayon stripes by having them come in contact with hot flame. After singeing the goods should be treated with diastaf for the purpose of removing the starch. If the goods contain no color, that is, either colored cotton threads or colored silk threads, they can be run into a kier for a regular boil.

Care in Washing Essential.

"Some plants prefer not to boil even all white fabrics, but a great many plant do give them a regular pressure boil, after which they are pulled out of the kier, washed, given a chlorine treatment and allowed to stand long enough for the bleaching to be completed. The again washed, given an anti-chlor treatment washed again and piled in the white bins ready for finishing.

"It is during these various washings, while being bleached, that extreme care must be taken to minimize the amount of tension put on the goods. It is preferable to use a slack washer, but as all plants are not equipped with slack washers the ones which are not get very good results without them if proper care is taken to minimize the tension.

"After bleaching, the goods are pulled out and opened up on a scutcher, and usually lightly mangled. A heavy mangling is very dangerous because at this point the goods are still wet and therefore in a condition to make extremely easy the breaking of the rayon threads. On some goods it is desirable not to mangle them at all, especially where the rayon passes over cords; and on still others it is sometimes found more desirable not even to put them over scutcher, but to open them up by hand, which is naturally an extremely slow process, but even at that, better than damaging the cloth.

"Goods containing colored cotton threads or colored silk threads must be bleached in a slightly different way from all white goods. They cannot be boiled as goods are that contain no color. Of course, if a peroxide bleach is employed, the entire bleaching process, whether the goods contain color or not is conducted in the kier, but my remarks are concerned chiefly with the chlorine bleach.

"Goods containing color are usually scoured in an open soaper in lieu of boiling and then bleached as outlined above for all white fabrics. It is sometimes necessary to treat more than once with chlorine goods containing colored yarn, this being made boiled and therefore have not

(Continued on Page 28)

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SOUTHERN TEXTILE BULLETIN

Member of Audit Bureau of Circulations
Member of Associated Business Papers, Inc.

Published Every Thursday By
CLARK PUBLISHING COMPANY
Offices: 39-41 S. Church St., Charlotte, N. C.

THURSDAY, OCTOBER 15, 1925

DAVID CLARK
D. H. HILL, JR.
JUNIOUS M. SMITH

Managing Editor
Associate Editor
Business Manager

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ADVERTISING

Advertising rates furnished upon application.
Address all communications and make all drafts, checks and money orders payable to Clark Publishing Company, Charlotte, N. C.

The Edmonds Articles

RICHARDS WOODS EDMONDS, whom we understand is from Connecticut, has contributed a series of articles to the Boston News Bureau and we can not too highly commend them.

The articles entitled, "Why Cotton Mills Have Been Moving South," began in the August 25th issue of the Boston News Bureau, a leading financial paper of Boston, and for many weeks ran in the Monday issue of that paper.

There have been many men who have visited the cotton mills of the South and written their impressions of the industry, but Richard Woods Edmonds is the only one who, in our opinion, has been able to grasp the situation and to learn the true inside facts.

He did not try to flatter the Southern mills but wrote of conditions as he found them, and he seemed to have had the ability and keenness to get the facts.

It is probably true that more silly articles and rot has been written about the cotton mills of the South than any other industry in this country and it is a relief to find one man who could write the truth without favor or prejudice.

Prof. Broadus Mitchell, of Baltimore, Md., wrote a book on the subject and his nephew or son (we do not recall the relation) later did likewise, and they were supposed to be honest and reliable statements, but neither man seemed to be able to grasp the situation and both contained erroneous statements and observations.

Richards Woods Edmonds has rendered a service to the textile industry of the South by describing in a Boston paper the conditions that actually exist.

The Bennett Article

THE space in the Wool and Cotton Reporter that has recently been devoted to an alleged exposure of the sizing compound manufacturers was in their last issue given to us; in fact, we seem to have the edge on the compound manufacturers because they gave us more than three full columns. We are publishing their article in full in this issue.

The cause of the transfer of ire was our recent observation that only those who had not advertised in the above mentioned journal had been victims of the "exposure."

In their tirade they admit the truth of our statement and they get so mad that it must be that the truth hurts.

We do not know much about sizing compounds and have no doubt that there are some that sell for more than they are worth, but there are many firms doing an absolutely fair and honest sizing business and we do not think any such vicious attack upon them was justified.

The Wool and Cotton Reporter presents the exposure as a great philanthropic enterprise, but when they select for exposure only those firms that refused to advertise with them and touch none who consented to buy space, there is at least a suspicion that all is not philanthropy.

Howard Bennett stated recently that his publications take in \$500,000 per year from advertising and that he does not care a rap whether or not anybody advertises in his journal and at the end of last week's tirade he says "David is throwing some mud."

Our observation upon the above is that Howard is throwing some "bull."

When it gets so that a man who, with his father and brother, owns a journal and collects the revenue,

does not care whether or not anybody advertises in it, he will be getting ready to sprout wings.

We are not so rich as all that and we welcome the advertising that gives us the financial support that enables us to publish the Southern Textile Bulletin and make a profit.

The philanthropist, Howard Bennett, must be in a nest of philanthropists, for a Boston friend of his paid for 1,000 yearly subscriptions to the Wool and Cotton Reporter, and the men and firms in Oklahoma, Mississippi and elsewhere that received the journal, although they had never heard of it before, were called "subscribers" and so recorded in the Audit Bureau of Circulation report, and the addition of the 1,000 names was of great benefit to the Reporter. The man who paid for the subscriptions was a wonderful philanthropist and a fit associate for the other man who has so much advertising money rolling in that he never cares to see another dollar.

We have not much interest in the number of subscribers of the Wool and Cotton Reporter or how they obtained them and our readers have even less interest in the subject.

The Reporter is one of the leading journals in the textile industry and has undoubtedly won its position by energy and merit.

We do not approve of some of their methods and tactics but usually feel that it is none of our affair, and we have enough troubles of our own.

When, however, they launched this sizing compound attack which tends to bring under suspicion a large number of our friends whom we know to be honest, we did feel resentment and did call attention to the fact that all of those who were given the alleged exposure were non-advertisers in the journal that had set itself up as a judge and that its own selling methods did not qualify it to judge others.

The Wool and Cotton Reporter articles, stating that certain sizing compounds are absolutely worthless, are a serious reflection upon the superintendents and overseers in the South who have been using the compounds for years and, because of the results obtained, have continued to recommend their purchase to the mill treasurers. We prefer the opinion of those who have used the compounds to that of the alleged expert chemist employed by Bennett.

We have no desire to throw mud or enter a controversy, but we did feel and still feel that we were justified in throwing the spotlight upon what we believed to be the motive behind the attack.

If some of the sizing compound manufacturers are practicing fraud upon the mills, it is a matter that the mills should and can investigate and many of them have connections with well qualified and unprejudiced chemists.

Perhaps the Wool and Cotton Reporter is actuated solely by philanthropic motives, but their efforts would be more effective if all their blows did not fall upon those who had refused to advertise with them.

J. B. Duke

THE death of J. B. Duke last Saturday marked the passing of one of the big business men in American life.

Beginning life in poverty upon a small farm near Durham, he became the greatest tobacco manufacturer in the world and died a multimillionaire.

These are things about the upward fight of Mr. Duke that we do not admire, but having reached the top he changed into a philanthropist and had a real desire to do something for the development of his native State.

His development of the water powers of the Piedmont section enabled it to expand industrially and has benefited thousands.

His recent establishment of the \$40,000,000 Duke Foundation will benefit many and do great good in the years to come.

J. B. Duke was the greatest benefactor the Piedmont section of the South has ever seen or will probably ever see.

Upon whose shoulders will his mantle fall? Will his power developments and his electric railway projects still go forward?

These are questions that will be answered in time, but we believe that it was his wish that progress should continue.

R. M. Miller

NEWs of the death of R. M. Miller, of Charlotte, will be received with much regret throughout the industry.

Mr. Miller retired from active business life several years ago, but prior to that time had been president of the American Cotton Manufacturers' Association and a member of the Board of Governors of the National Association of Cotton Manufacturers.

For many years he was secretary and treasurer of the Atherton Mills in Charlotte and later built and owned the Elizabeth Mills which he sold in 1917. At both mills he was very successful.

Years ago when the editor of this journal was engineer and textile machinery salesman with the D. A. Tompkins Company, of Charlotte, R. M. Miller was secretary of that company and the friendship formed at that time and continued since then makes us deeply regret his passing.

Mr. Miller was of a very conservative type but a splendid business man and his integrity was always beyond question.

Meeting of Southern Textile Association

DAVID CLARK left Wednesday night for Georgia and will spend one day visiting mills before attending the meeting of the Southern Textile Association at Columbus, Ga.

Mr. Clark expected to spend the entire week in Georgia, but business engagements prevent his leaving Charlotte before Wednesday night.

Personal News

J. M. Kelley, of Gastonia, N. C., has accepted the position of night superintendent at Ozark, Ala.

W. R. Barnes has resigned as overseer of carding at the Hermitage Cotton Mills, Camden, S. C.

N. B. Dial has resigned as card grinder at the Hartsville Cotton Mill, Camden, S. C.

H. P. Cannon has resigned as night overseer carding at the Hermitage Cotton Mills, Camden, S. C.

H. O. Burns has resigned as overseer weaving at the Hermitage Cotton Mills, S. C.

W. A. Case, of Darlington, S. C., is now grinding cards at the Hermitage Cotton Mills, Camden, S. C.

D. L. Jones has been promoted from night overseer to day overseer weaving at the Hermitage Cotton Mills, Camden, S. C.

G. C. Davis has accepted the position of night overseer of weaving at the Hermitage Cotton Mills, Camden, S. C.

W. T. Jeffries, of Bon Air, Ala., will be overseer carding and spinning at the Cardinal Mills, West Point, Miss., which will resume work next week.

J. M. Hooper has accepted the position of overseer weaving at the High Shoals plant of the Manville-Jenckes Company, High Shoals, N. C.

E. C. Riley has resigned as overseer night carding at the Kershaw Cotton Mills, Kershaw, S. C., to become overseer carding at the Hermitage Cotton Mills, Camden, S. C.

L. M. Manly has resigned his position with the Pelzer Manufacturing Company, Pelzer, S. C., to become overseer carding at the Gluck Mills, Anderson, S. C.

E. C. Goodwin, formerly of the Loray plant of the Manville-Jenckes Company, Gastonia, N. C., has become night overseer carding at the Rex Spinning Company, Ranlo, N. C.

W. C. McAbee has resigned as overseer of the cloth room at the Fort Mill Manufacturing Co., Fort Mill, S. C., and accepted a similar position at the Glurk Mill, Anderson, S. C.

S. R. Kennett, who for the past 21 years has been overseer weaving at the High Shoals Mill, High Shoals, N. C., has resigned and will retire from active work at the mill. He will devote his time to his farm.

T. N. Reeves has resigned as overseer of carding and spinning at the Fort Mill Manufacturing Company No. 1, Fort Mill, S. C., to become superintendent of the Carhartt Mill No. 2, Rock Hill, S. C., which has just changed hands.

M. W. Driver will be superintendent of the Cardinal Mills, West Point, Mills., which will be started up next week.

E. P. Floyd has resigned as overseer of towel weaving at the Tucapau, S. C., Mills, to become overseer weaving at the Cascade Mills, Mooresville, N. C.

Ernest Moore, of Lancaster, S. C., has accepted a position as traveling salesman for the mill supply department of Norris Bros., Greenville, S. C. He will travel western North Carolina.

J. M. Jeffries, of Bon Air, Ala., has come engineer and master mechanic at the Cardinal Mills, West Point, Miss., which will resume operations next week.

M. C. Phillips has resigned as overseer weaving at the Cascade Mills, Mooresville, N. C., and accepted a similar position at the Hoskins plant of the Chdwick-Hoskins Company, Charlotte.

Harry Morrow With Joseph Sykes.

Harry Morrow, who was formerly with Joseph Sykes Bros., Charlotte but who for some time has been with the Charlotte Manufacturing Company, manufacturers of card clothing, has accepted a position as



Harry Morrow.

traveling representative for Joseph Sykes Bros.

Mr. Morrow will make his headquarters at Atlanta and will have charge of the Georgia, Alabama, Tennessee and Mississippi territory. He is widely known in the Southern textile industry and has a great many friends who will be interested to know that he has returned to Joseph Sykes Bros.

AMALIE PRODUCTS

"Unaccountable" decreases in production

—can be traced not infrequently to the use of inferior warp dressing! The "unexplained" becomes evident when an investigation into the chemical composition of the size is made.

Many mill men would find it profitable to have an expert go into their warp dressing problem with them to make sure that they are getting the best possible production—both in quantity and quality.

It would pay them to call in a **Sonneborn** representative and let him study their wants from the expert's point of view. This man is a specialist in the highest sense of the word. He is a member of an organization of technical men who have gone into the subject from a scientific standpoint.

Years of study and research in the **Sonneborn** textile laboratories have resulted in the placing of **TALLOW SOLUBLE** and **GLUANTINE** on the market. The care taken in their manufacture has been well repaid by the success these products have made in daily performance in many prominent Southern and New England cotton mills.

We would be pleased to send one of our experts to your mill to talk over your specific needs. No obligation. Write

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MILL NEWS ITEMS OF INTEREST

Sherman, Texas — The Sherman Manufacturing Company will install 24 Draper automatic looms.

Rock Hill, S. C.—The local plant of the Highland Park Mills, which has been idle for some time, has resumed operations.

Kinston, N. C.—The Kinston Hosiery Company has been incorporated with a capital stock of \$400,000 authorized, by C. F. Harvey, Henry Tull, J. F. Taylor, H. E. Moseley and others.

Parkersburg, W. Va.—The Viscose Corporation, producers of rayon, have acquired a site here of 130 acres and will soon receive bids for construction of a plant. The ultimate cost of the development here will be around \$10,000, and the first unit will cost at least \$2,000,000.

Uniontown, Ala. — The California Cotton Mills, Oakland, Cal., which recently purchased the Canebrake Mills here and the Sunset Mills, of Selma, are preparing to erect an addition to the Canebrake plant that will double the capacity of the mill.

Henry River, N. C.—The Henry River Cotton Mills are remodeling their mill and adding some new equipment. They have placed contract to Fairbanks, Morse & Co. for thirty-six 7½ h. p. individual spinning frame ball bearing motors.

Lavonia, Ga.—Improvements being made at the Lavonia Cotton Mills include the installation of a dye-house and equipment for making high grade cotton yarns, 4s to 24s, single and ply.

Guero, Texas—The committee in charge of financing subscriptions necessary to secure a new mill here reports that the remaining funds for the purpose will be secured within a short time and that the mill will be built.

Oxford, N. C.—The C. and M. Hosiery Mills, which were partially burned last week, are making plans for rebuilding. Temporary quarters to house the equipment until the building is ready have been secured.

Anderson, S. C.—The contract was let in the office of J. E. Sirrine & Co. to place new roofing on the Gluck Mills, at Anderson. The contract was secured by The Flood Roofing Company, of Greenville.

Burlington, N. C.—The Liberty Hosiery Mills, which were organized here some time ago, are having plans prepared for the erection of a mill building to be 30x52 feet, one story. The company, of which C. P. Foster is secretary, expects to purchase the knitting and other equipment within a short time.

LaGrange, Ga. — Regarding plans for the electrification of a number of the mills of the Callaway group, as reported last week, Robert & Co.,

of Atlanta, engineers, report that it is planned to electrify the Elm City Cotton Mills, Hillside Cotton Mills, Unity Cotton Mills, Unity Spinning

Mills. It is likely that only the Unity Cotton and the Hillside Mills will be equipped this year. The whole plan for electrification will require 3,000 h. p. of motors. No contracts have been let yet, but the engineers are interested in receiving bids for electrical equipment on machinery involved and for installation.

Rock Hill, S. C.—Organization of the company which purchased the Carhartt Mill No. 2, at Carhartt Station, as reported previously, has been completed. York Wilson will be president. T. N. Reeves, of Fort Mill, will be superintendent.

It is understood that the plant is to be improved and enlarged and contract is to be let at once for the erection of 25 new cottages.

Marietta, Ga.—The Atlanta Cotton Products Company, of Atlanta, Ga., which recently acquired the Marietta Cotton Mills, will manufacture carpet and insulating yarns. P. A. Ammons is secretary and treasurer and C. E. Bailey, formerly of the Piedmont Cotton Mills, Egan, Ga., has been appointed superintendent. The mill will be known as the Willinca Cotton Mills.

Soddy, Tenn.—The Soddy Hosiery Mills have been incorporated with a capital stock of \$100,000 by W. H. Crow and Garnett Andrews, the latter of Rossville, Ga. As previously reported, the company, in conjunction with the Richmond Hosiery Mills, Rossville, will establish a hosiery mill here, construction work on the plant having already been started.

Columbus, Ga.—Heavy rains in Georgia last week have not served to increase supply of power for textile plants in this territory. On the other hand there has been talk of curtailing to a greater extent. Mills of this city continue to run at night, to make up day curtailment.

Over at LaGrange, where the drouth has been worse and where there is no river nearby, the mills have chartered trains to haul water in tank cars, to get steam power to operate during the day. They are using, too, their allotment of power.

The situation at Augusta has been acute also. However, Muscle Shoals, Ala., is now furnishing power for the mills over the Georgia Railway and Power Company lines, and their operation is now considered about 50 per cent.

Committee D-13 Concludes Meeting

Greenville, S. C.—Realizing the remarkable industrial growth of the South during the past few years, the American Society for Testing Materials is relying upon the section's support and co-operation in the standardization of the textile

THE FARISH COMPANY

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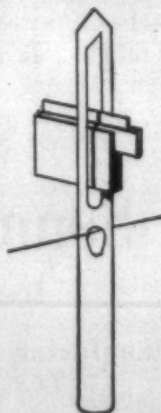
1,000 Acres in Alabama

Site for TEXTILE INDUSTRY, large store for general merchandise, cotton gin and dwellings now used by operating iron furnaces. Land traversed for three miles by branch line connecting with Southern Railway System. Unfailing spring water supply two thousand gallons per minute. Healthful location, well drained, elevation 750 feet. Churches and school established. Location midway between Massachusetts Mills in Georgia and Dwight Mills in Alabama. Midway between Rome, Ga., and Anniston, Ala., textile centres. Ten miles from Alabama Power Co. lines.

Textile mills now interested in Alabama location invited to correspond.

J. M. GARVIN

Rock Run, Cherokee County, Alabama



K-A Electrical Warp Stop For Looms

is backed by twenty years of experience and steady growth. It is adopted by representative mills weaving cotton, silk, worsted and woolens.

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Largest Landscape Organization in the South

industry, stated C. L. Warwick, secretary and treasurer of the organization in his address to Committee D-13 at a banquet which was held in the ball room of the Poinsett Hotel and which was the closing event in the committee's conference in Greenville. The body, which is the textile group of the national society, was in conference here for two days, at the first meeting of any major group of the national society ever held south of Washington.

"Committee D-13 is the third largest group of the American Society for Testing Materials." Mr. Warwick stated in his address in emphasizing the importance of the work being done by the organization. "The body consists of about 140 members, from over the entire country, and its aim is the standardization of manufacturing and testing methods in the textile industry."

The magnitude of the work being done by the society was shown by the speaker when he pointed out that there are approximately 1,300 members of the national organization in America. Membership is voluntary, and no one is paid for his services, he said. The group expends approximately \$85,000 yearly in furthering research and standardization work in all of its branches of activity. Most of this sum is raised by the members themselves, he explained, and does not take into consideration the amount expended individually by the industries represented in their research work.

The banquet at the Poinsett Hotel was given by the Chamber of Commerce and marked the close of what, according to P. B. Cook, secretary of the committee, was the most successful conference of the body ever held. T. M. Norris, president of the Chamber of Commerce, acted as toastmaster. The Chamber of Commerce quartet, composed of W. R. Timmons, J. McRabb, Earl Mauldin and T. T. Barfield, gave several numbers which were greatly enjoyed by the assembly. Two piano solos by Mrs. O. B. Hartzog and several vocal duets and solos by Mrs. H. T. Crigler and Mrs. W. L. Luther, were also delightful features of the evening.

Souvenirs in the form of small measuring tapes and quill pens were distributed as compliments of the J. B. Ford Company, manufacturers of alkalies and chemicals, of Wyandotte, Mich. The company was represented by P. C. Westmoreland, of the Greenville branch, and J. G. Schaeffer, of the Charlotte office.

The address of welcome was given

WELL DRILLING AND DEEP WELL PUMPS

We do the engineering, and have had 32 years experience solving water problems satisfactorily for textile mills.

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We are proud of the fact that our Service Shops at Charlotte and Atlanta are always busy with the work of customers who want to feel the satisfaction of certainty. Are you one of them?

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by Dr. Frank P. Gaines, of Furman university, who extended the greetings of Greenville in his usual eloquent manner.

Dr. D. W. Daniel, of Clemson College, made one of his characteristic speeches, taking as his theme the value of being cheerful.

The address of Dr. W. F. Edwards, chairman of Committee D-13, A. S. T. M., on "Fabric Testing and the Standardization of the Textile Industry," was retrospective and prospective, as he explained at the start. He reviewed the history of the development of modern science, telling of the struggles of scientists against religious sects in the Middle Ages. The war between science and religion has never halted, being waged with varying intensity through the ages, he stated.

The development of the first crude methods of testing the moisture content of silk goods, which was made in France, was told by the speaker, and the succeeding steps in that line of endeavor were related. The importance of the standardization of methods of spinning and weaving was emphasized.

The conclusion of Dr. Edwards' address was an appeal for the whole-hearted efforts of all textile men to rally to the task lying before them, the complete standardization of the industry.

Two sessions were held by the committee in the ball room of the Poinsett Hotel. At these sessions several papers on topics relating to the textile industry were read. Lantern slide illustrations were given with two of the lectures. The illustrated lecture on "Microscopic Work" was declared particularly interesting by those present. The illustrations showed how the structure of various fibres differ, and what effect certain bleaching and dyeing processes have on the fabrics. A number of local men attended the meetings.

J. A. Strain Dead.

Rome, Ga.—J. A. Strain, of Calhoun, well known in Rome as president of the Strain Cotton Mills on Eighth avenue, died at a local hospital Tuesday following an illness of several months.

Mr. Strain, who was 67 years of age, was formerly president of Echota Mills, in Calhoun and Rome. He was one of the most prominent cotton goods manufacturers in this section of the country and had a wide circle of friends here. He is survived by four sons and three daughters. Funeral services and interment will be held in Calhoun Wednesday.

Announcing the Opening of

Gibson Supply Co.

Textile Machinery and Supplies

2016 N. Lamar

Dallas, Texas

W. H. Gibson, Manager

Can Our Mills "Diversify?"

(Greenville Daily News)

Diversification in the manufacture of cotton textiles was emphasized as one of the essentials to furthering the prosperity of the industry in the South, at a "textile diversification dinner" held recently in Charlotte, and attended by eight hundred mill men.

Though cotton manufacturing has made great strides in the South, Governor McLean of North Carolina advanced the interesting view that

the industry is yet in the "transition" stage. Formerly the South sent its raw materials to New England to be manufactured; now we are manufacturing many finished products, "but are still shipping much half-finished goods to New England to be finished. In other words, we are still in a transition stage. We must develop our own industries to the point where we manufacture and market the finished product, and must diversify as we do it. The skill and ability of our people has been demonstrated. It only remains to put it to work."

Diversification, defined as the production of more different varieties of cloth, appears to be regarded as highly important to continued and greater textile progress. To bring it about, however, means actual creative work on the part of producing mills, and not merely the duplication of styles put out by others. Theo. H. Price, editor of Commerce and Finance, and an authority on cotton, made this point in quoting a New England manufacturer as advising him: "Diversification is all right, but for heaven's sake, tell your Southern friends not to diversify by copying

my goods." The ideal diversification is creative and not imitative, said Mr. Price.

Creative work in diversification will require some sort of research laboratory or research campaign. A research department, working ceaselessly to develop new styles and new weaves would be the prime requisite of successful effort at diversification, it was pointed out by one of the speakers.

There is, therefore, much to be done before really satisfactory diversification of mill products in the South can become a general and sat-

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The Standard of The World For Tests of Fabrics,
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Manufacturers of Speeders,
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Shuttles for all makes of looms,
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BOBBINS
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OF EVERY DESCRIPTION**

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Catalog on Request

AUTOMATIC SHUTTLES
Try Our New Automatic Shut-
tles for either cotton or woolen
weaving. It is meeting every
requirement with entire satis-
faction.

isfactory practice. The subject, however, should engage the attention of the executives of the mills of the section. A pertinent thought in this connection was advanced by J. E. Sirrine, mill architect and engineer, of Greenville, who quoted as suggesting that:

"Before much progress could be made in diversification some sort of bureau of information on the subject should be established. The textile organization in spite of its great efficiency and development of its great efficiency and development of individual plants, is one of the most loosely organized of all the great industries. Mill men must organize their interdependence, organize more strongly, find out just what is meant by diversification, what the problems are and how to attack them. They can then proceed intelligently and with a minimum of expense."

It seems clear that the problem of textile diversification is one for whose solution the foundation must yet be laid. The manufacturers have a difficult task ahead of them, but it is one that promises great rewards.

Chas. Stone Gives Luncheon For Dr. Herty

ON last Saturday Chas. H. Stone, Southern representative of the Grasselli Dyestuff Corporation, gave a lunch for Dr. Chas. H. Herty, of New York, who is now secretary of an organization interested in developing the dyestuff industry of this country.

Those who were Mr. Stone's guests were J. L. Dabbs, J. D. Hunter, H. Marshall, C. P. Walker, E. S. Reid, Sr., E. C. Dwelle, H. S. Adams, W. H. Willard, J. M. Hatch, A. L. Randolph, L. H. Wilkinson, J. O. Hereford, David Clark and Dr. Chas. H. Herty.

Dr. Herty made a short talk reviewing the fight made to establish a dyestuff industry in the United States and its remarkable success.

Breaking Strength of Rayon

(Courtesy of the Associated Knit Underwear Manufacturers of America)

One of the chief disadvantages of using rayon is its tendency to become very weak and tender when in a wet state. In this condition, the filaments are very easily stretched and attenuated so that when the rayon becomes dry again, these stretched filaments do not regain their former strength as is the case in a fiber having a high percentage of elasticity. For this reason, fabrics composed wholly or in part of rayon yarns should receive very careful handling in washing or cleaning to avoid this loss of when wet practically regain their former strength when dry again provided that they have not been stretched when wet.

The following is a list of the results of breaking strength tests in ounces made on sample deniers received from manufacturers in this country. Tests in the dry state

were made in single yarns after they had been conditioned at a relative humidity of 65 per cent at 70°F. for at least four hours. The yarns were broken on an inclination balance type yarn tester, using a distance of 4 inches between jaws, speed of jaws 12 inches per minute. The same conditions applied to the strength. Yarns receiving this care tests on the yarns when wet except that the samples were placed in a basin of clean water for at least 10 minutes before testing. The results shown are averages of 30 tests on each denier. The percentage of loss in strength when wet is also shown.

SUMMARY OF BREAKING STRENGTH TESTS
Average breaking strength of 30 tests in ounces)*

| Sample | 150 d | | | 300 d | | | 80 d | | | 100 d | | | 190 d | | |
|----------------------|-------|------|--------|-------|------|--------|------|------|--------|-------|------|--------|-------|------|--------|
| | Dry | Wet | % Loss | Dry | Wet | % Loss | Dry | Wet | % Loss | Dry | Wet | % Loss | Dry | Wet | % Loss |
| Viscose I | 6.7 | 2.6 | 60.7 | 13.8 | 5.0 | 63.7 | 12.6 | 4.6 | 63.0 | 12.6 | 4.6 | 63.0 | 7.8 | 4.5 | 42.4 |
| Viscose II | 6.8 | 2.7 | 59.8 | 12.6 | 4.6 | 63.0 | 12.6 | 4.6 | 63.0 | 12.6 | 4.6 | 63.0 | 7.8 | 4.5 | 42.4 |
| Viscose III | 5.8 | 1.8 | 68.5 | 10.7 | 6.9 | 35.3 | 10.7 | 6.9 | 35.3 | 10.7 | 6.9 | 35.3 | 7.8 | 4.5 | 42.4 |
| Acetate I | 5.5 | 3.2 | 40.6 | 12.6 | 6.6 | 44.4 | 12.6 | 6.6 | 44.4 | 12.6 | 6.6 | 44.4 | 7.8 | 4.5 | 42.4 |
| Acetate II | 5.5 | 3.1 | 43.9 | 12.6 | 6.6 | 44.4 | 12.6 | 6.6 | 44.4 | 12.6 | 6.6 | 44.4 | 7.8 | 4.5 | 42.4 |
| Nitro-Cellulose | 7.7 | 3.1 | 60.2 | 12.6 | 6.6 | 44.4 | 12.6 | 6.6 | 44.4 | 12.6 | 6.6 | 44.4 | 7.8 | 4.5 | 42.4 |
| Cuprammonium | 6.1 | 1.4 | 76.5 | 12.6 | 6.6 | 44.4 | 12.6 | 6.6 | 44.4 | 12.6 | 6.6 | 44.4 | 7.8 | 4.5 | 42.4 |
| True Silk, 12 denier | 18.2 | 14.7 | 19.1 | 18.2 | 14.7 | 19.1 | 18.2 | 14.7 | 19.1 | 18.2 | 14.7 | 19.1 | 18.2 | 14.7 | 19.1 |

Observation of these figures shows that in the dry state, the Nitro-Cellulose and Chardonnet rayon has the highest breaking strength compared with others of the same same denier, while the Acetate rayons I and II show considerable less loss in breaking strength when wet than the other varieties.

W. A. Blacker, who has been out of the mill for some time, has accepted the position of second hand in carding at Chadwick-Hoskins Mill No. 1, Charlotte, N. C.

SUPERINTENDENTS AND OVERSEERS.

We wish to obtain a complete list of the superintendents and overseers of every cotton mill in the South. Please fill in the enclosed blank and send it to us.

1923

Name of Mill _____

Town _____

Spinning Spindles _____ Looms _____

Superintendent _____

Carder _____

Spinner _____

Weaver _____

Cloth Room _____

Dyer _____

Master Mechanic _____

Recent changes _____

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Southern Office:
908 Johnston Building
Charlotte, N. C.
Ira L. Griffin, Manager

Bleaching, Dyeing and Finishing Cotton Fabrics Containing Rayon

(Continued from Page 24)

had well removed the moats and other foreign substances.

"It is sometimes found necessary on goods containing blue stripes to develop them with hydrosulphite after being bleached in order to restore their original color. I have noticed a difference in the amount of luster developing in goods containing colored silk yarns. A gold shade is always very brilliant, and a blue shade having less luster than any. This is doubtless due to the fact that the gold color, next to the white, reflects the light better than the other colors, and the blue reflecting it worse than any others.

Now Finishing Problem.

"From this point the problem becomes one of finishing, so after the mangling mentioned, the goods are dried and then ready either for dyeing or for finishing. There is nothing special to be said about the dyeing of these fabrics because they are practically always dyed into light or medium shades which can be produced on a padder in the same manner as all cotton fabrics. In the finishing of them, however, in fact of any fabric containing rayon, the second big feature for the finisher to remember, namely that of preserving the luster of the silk should be especially kept in mind. Large quantities of starch and oil should not be used. It is desirable in starching to use as nearly as possible starching materials with transparent qualities, such as gums and waxes of various kinds. Starches have a tendency to coat over the silk stripe and to prevent the reflection of light, while gums and waxes having transparent qualities, do not to any appreciable extent effect the luster of the silk fabrics of this kind are usually finished into soft or semi-soft finishes, so that large quantities of starch are not necessary. After starching the goods are dried, or partially dried and stretched to the desired width on the tenter frame, at which time the drying can be completed. The calendaring or finishing, and the putup and packing is then done depending upon the particular requirements of the customer.

Possibilities of Celanese.

"A paper of this kind would not be complete without briefly mentioning the possibilities of celanese. Some wonderful cross dyeing effects have been secured with this new form of silk and in this age of violent style fluctuations and the demand for anything new or novel, there seem to be wonderful possibilities in this field. There has been very little development in the bleaching, dyeing and finishing of fabrics containing celanese in the South. There is no reason why it cannot be satisfactorily done and the time should not be far distant when there should be more goods of this type manufactured in the South, which should also be bleached, dyed and finished in the South. More and

more of the cotton mills are experimenting with its manufacture, and if it enjoys the popularity that I believe is ahead of it, it will not be long before southern finishing plants will be well fixed to handle it.

"There are a few important things to keep in mind in the bleaching of goods containing celanese, one being that it will not stand high temperatures and therefore cannot be boiled in a kier. The temperature should not exceed 180 degrees in the bleaching, dyeing or finishing if the luster of the silk is to be preserved. Also the chlorine bath which can be used in bleaching it should be kept as nearly neutral as possible. The dyeing is handled in very much the same mechanical manner as the dyeing of all cottons, or other artificial silk striped fabrics. Special dyes must be used, such dyes being made by the manufacturers of the celanese silk as well as other dyestuff manufacturers. Cotton has no affinity for regular types of cotton dyes. Therefore the two types of dyes can be made up in the same bath and upon passing the goods through this mixture get the desired results on both silk and cotton.

"There are many forms of both manufacturing and finishing now being done in the South, including large quantities of fabrics containing rayon, which for one reason or another it was thought for a long time could not be successfully handled in the South, but which feeling has now long since disappeared. We who are gathered here are all interested in the same or similar lines. The spirit of cooperation and mutual helpfulness which Southern mills have shown toward each other for a great many years has been largely responsible for the position the South now holds in the textile field, and only by a continuance of that policy and by meetings of this kind where we all come together for the purpose of learning something new or of improving our present methods can we hope to make in the South the progress that we should."

Fastness Tests for Colors

CONSIDERABLE progress has been made by the Bureau of Standards in investigations looking toward the establishment of standard tests for fastness of colors, it was said recently. This work, and investigations looking toward standards of strength of dyes, have been under way at the bureau for nearly two years, under the direction of Dr. W. D. Appel, says the Daily News Record.

The movement inaugurated last week by the joint committee of the Converters' Association and the National Association of Finishers of Cotton Fabrics, in co-operation with other interests concerned, to provide a means of indicating fastness to the purchaser of fabrics, is a step in the right direction, Dr. Appel said.

The public must be educated about fastness, Dr. Appel believes, before full results can be obtained by any standard; in other words, the consumer or user must under-

stand that extraordinary treatment of a fabric will bring injury.

Fastness in a color, Dr. Appel says, should mean that it is "fast to a reasonable treatment, according to the type of material, and in ordinary use." Fastness to washing depends upon many conditions, the cleaning agent, temperature of the water, etc. Fastness to light differs, according to sunlight or artificial light, humidity, temperature, etc.

Sunlight's Power Varies.

"Experiments have shown that reaction to sunlight differs widely. Tests are to be made this fall with exposure to sunlight in Canada, and in Louisiana. Tests were made last summer in New York and in Washington, with far different results as to the time required. Washing tests have progressed so far that sets of five or six different classes of cotton, wool and silk fabrics, with varying range of fastness, are to be sent to 10 or more private laboratories for tests under their conditions.

"With reference to the movement to define the meaning of the terms 'fast to light,' 'fast to washing,' etc., reported in the Daily News Record of October 3, it should be pointed out that such conditions would depend on standard tests to be recognized and used by the whole industry," Dr. Appel said.

"The Bureau of Standards has been co-operating with the American Association of Textile Chemists and Colorists in devising comprehensive tests of this nature.

"Tentative standard washing tests have been published in the 1925 year book of the association. (Obtainable through Prof. Louis A. Olney, Lowell Textile School, Lowell, Mass.) Certain alternative methods have been proposed. It is planned to have these methods tried out in a practical way by representative laboratories, and on the basis of the criticisms and suggestions obtained, to decide on the form to be advocated.

"The principal features of these washing tests may be mentioned:

"Separate tests are given for the three fibers, cotton, wool, and silk, because they receive different treatment in ordinary laundering. The old method of subjecting the dyed material to a very severe washing, and assigning it to a fastness class based on the degree of change the color has undergone in the washing has always given trouble, because no two people could agree on the amount of the change noticed.

"In the new method, the material is washed in a series of tests graduated with respect to severity, and it is only necessary for the tester to judge whether the material does or does not show an appreciable change in each test. If it shows no appreciable change, it passes the test and is assigned to the corresponding fastness class.

The Fastness Classes.

"If it shows an appreciable change, it is passed on to a less severe test.

"The fastness classes may be readily correlated with practical use. For the purpose of the movement referred to in the Daily News Record, it is probable that only one class that comprising materials may

be washed repeatedly without appreciable change in color, and which may therefore truthfully be advertised as fast to washing will be of interest.

"Of equal importance with fastness to washing tests are fastness to light tests.

"They present great difficulties to standardization, because of the variability of sunlight, and because atmospheric influences have a marked effect on the rate and nature of fading.

"The Bureau of Standards has developed an apparatus in which the light is furnished by a large tungsten electric lamp, and the humidity, temperature and nature of the atmosphere about exposure samples can be controlled.

"Tests with this apparatus have shown that some dyeings fade two or three times faster in an atmosphere of high humidity than one of low humidity. On the other hand the fading of some dyeings is not affected by the humidity.

"It is believed the work will form a basis for adequate standard fastness to light tests."

Rayon Fire Risk No Higher Than in Cotton Yarns

Use of rayon yarns creates no greater fire hazard, generally speaking, than the use of cotton yarns, the Bureau of Standards announced, as the conclusion of tests conducted by the textile section, and the fire resistance section.

The tests were made as the result of requests from several underwear manufacturers, who declared their insurance rates were being increased because the underwriters considered rayon more inflammable than cotton. The tests included increased heat and direct flame.

In its official announcement the Bureau of Standards says:

"The combustion properties of rayon as compared with cotton have been studied by the bureau in connection with the general problem of the use of rayon in underwear. This problem is extremely important to the underwear manufacturer, who is confronted with possible fire hazards, and correspondingly high insurance rates.

"Comparative results have been obtained on four kinds of rayon (acetate, nitrocellulose, cuprammonium and viscose), and a 35s combed cotton yarn. Samples of fabric knitted from these yarns were also tested.

"The results of the tests showed that only the samples made by the cuprammonium process were ignited more readily than cotton, and the difference in this case was very slight. Rayon made by the viscose process, had approximately the same ignition point as cotton, rayon by the nitrocellulose process was less susceptible to ignition than cotton, while rayon made by the acetate process showed the lowest ignition point of all the samples.

"The conclusion reached, stated generally, is that the fire hazard when using rayon is no greater than when using cotton, while some kinds of rayon present less hazard."

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Index To Advertisers

Where a — appears opposite a name it indicates that the advertisement does not appear in this issue.

| Page | Page |
|---|---|
| A | K |
| Akron Belting Co. — 29 | Klauder-Weldon Dyeing Machine Co. 34 |
| Allis-Chalmers Mfg. Co. — | Klipstein, A. & Co. — |
| American Cellulose & Chemical Mfg. Co., Ltd. 13 | Ladew, Edward R. Co. — 19 |
| American Moistening Co. — 25 | Lane, W. T. & Bros. — 42 |
| American Textile Banding Co. — | Landers Bros. Co. — 35 |
| Amory, Browne & Co. — 36 | Langley, W. H. & Co. — 36 |
| Arabol Mfg. Co. — 26 | Leslie, Evans & Co. — 36 |
| Arnold, Hoffman & Co. — | Lestershire Spool & Mfg. Co. — |
| Ashworth Bros. — 42 | Liberty Mutual Insurance Co. — 33 |
| Atlanta Brush Co. — 21 | Link-Belt Co. — |
| Atlanta Harness & Reed Mfg. Co. — 35 | Lowell Shuttle Co. — |
| B | M |
| Bahnsen Co. — | Macrodi Fibre Co. — |
| Broadway Central Hotel — 29 | Marston, Jno. P. Co. — |
| Bancroft, Jos. & Co. — | Mathieson Alkali Works — |
| Billington, James H. — 44 | Mauney Steel Co. — 37 |
| Barber-Colman Co. — 6 | Martini Hotel — 18 |
| Barber Mfg. Co. — 18 | Memphis Cotton — 39 |
| Blackmer Rotary Pump Co. — 32 | Marrow Machine Co. — 38 |
| Bosson & Lane — 25 | Moreland Sizing Co. — 21 |
| Brown, David Co. — 26 | Morse Chain Co. — 43 |
| Bradley, A. J. Mfg. Co. — 37 | Mossberg Pressed Steel Corp. — 35 |
| Butterworth, H. W. & Sons Co. — | Myles Salt Co., Ltd. — 38 |
| C | N |
| Carrier Engineering Corp. — | National Aniline & Chemical Co. — |
| Catlin & Co. — 37 | National Ring Traveler Co. — 37 |
| Charlotte Mfg. Co. — 2 | Newburger Cotton Co. — 32 |
| Chicago Belting Co. — | N. Y. & N. J. Lubricant Co. — 15 |
| Chicago Board of Trade — 20 | North Carolina Cotton — 29 |
| Chicago Fuse Mfg. Co. — | Norwood Engineering Co. — 34 |
| Cocker Machine & Foundry Co. — | P |
| Collins Bros. Machine Co. — | Page Fence & Wire Products Assn. 32 |
| Corn Products Refining Co. — 44 | Page-Madden Co. — 34 |
| Courtney, Dana S. Co. — | Paige, Schofield & Co. — 37 |
| Crompton & Knowles Loom Works — | Parker, Walter L. Co. — |
| Crump, F. M. & Co. — 36 | Parks-Cramer Co. — |
| Curran & Barry — 26 | Penick & Ford, Ltd. — 31 |
| Curtis & Marble Co. — 26 | Puro Sanitary Drinking Fountain Co. — |
| D | R |
| Dary Ring Traveler Co. — 33 | Reeves Brothers, Inc. — 36 |
| Davidson, Jos. L. Co. — 25 | R. I. Warp Stop Equipment Co. — 24 |
| Deering, Milliken & Co., Inc. — 36 | Rice Dobby Chain Co. — 35 |
| Denison Mfg. Co. — 16 | Rogers Fibre Co. — 10 |
| Dixon Crucible Co., Joseph — | Root Co. — |
| Dixon Lubricating Saddle Co. — 30 | Roy, B. S. & Son — |
| Drake Corp. — 31 | S |
| Draper, E. S. — 24 | Saco-Lowell Shops — 11 |
| Draper Corp. — | Sayles Finishing Plants — |
| Detroit Graphite Co. — 44 | Scott, Henry L. & Co. — 26 |
| Dronfield Bros. — | Seaboard Ry. — |
| Druid Oak Belting Co. — 25 | Sellers, Wm. & Co. — |
| Duplan Silk Corp. — 14 | Seydel Chemical Co. — 35 |
| DuPont de Nemours, E. I. & Co. — | Seydel-Woolley Co. — |
| E | Siggers & Siggers — 35 |
| Eclipse Textile Devices, Inc. — | Sirrine, J. E. & Co. — |
| Economy Baler Co. — 42 | Slip-Not Belting Corp. — |
| Emmons Loom Harness Co. — 38 | Sonneborn, L. Sons — 23 |
| Engineering Specialties Corp. — 38 | Sonoco Products — |
| Entwistle, T. C. Co. — | Southern Ry. — |
| F | Southern Spindle & Flyer Co. — |
| Fafnir Bearing Co. — | Southern Artsilk, Bleach & Dye Works, Inc. 37 |
| Fales & Jenks Machine Co. — | Stafford Co. — |
| Farish Co. — 24 | Steel Heddle Mfg. Co. — 17 |
| Ferguson Gear Co. — 16 | Stein, Hall & Co. — 28 |
| Ford, J. B. Co. — 33 | Sydnor Pump & Well Co. — 25 |
| Fournier & Lemoine — | T |
| Franklin Process Co. — 3 | Taylor, Chas. — 35 |
| G | Terrell Machine Co. — |
| General Dyestuff Corp. — 2 | Textile Finishing Machinery — |
| Garland Mfg. Co. — | Textile Mill Supply Co. — |
| Gibson Supply Co. — 25 | Thomas Grate Bar Co. — 35 |
| General Electric Co. — 4-5 | Tolhurst Machine Works — |
| Garvin, J. M. — 24 | Tripod Paint Co. — 33 |
| Georgia Webbing & Tape Co. — | U |
| Graton & Knight Mfg. Co. — | United Chemical Products Co. — 43 |
| Greensboro Loom-Reed Co. — 35 | U. S. Bobbin & Shuttle Co. — 26 |
| H | U. S. Ring Traveler Co. — 29 |
| Hart Products Corp. — 16 | Universal Winding Co. — 34 |
| H. & B. American Machine Co. — 12 | V |
| High Point Loom Reed & Harness Co. — | Vogel, Joseph A. Co. — |
| Hollingsworth, J. D. — 33 | Vivtor Ring Traveler Co. — |
| Hopedale Mfg. Co. — | W |
| Houghton, E. F. & Co. — 9 | Washburn — |
| Howard Bros. Mfg. Co. — | Washburn Printing Co. — 27 |
| Hyatt Roller Bearing Co. — | Watts, Ridley & Co. — 37 |
| I | Wellington, Sears & Co. — 36 |
| International Salt Co., Ltd. — 33 | Whitin Machine Works — |
| Industrial Fibre Co. — | Whitinsville Spinning Ring Co. — 35 |
| J | Williams, J. H. Co. — 2 |
| Jacobs, E. H. & Co. — | Wilts Veneer Co. — 38 |
| Johnson, Oliver & Co. — | Wolf, Jacques & Co. — |
| Jordan Mfg. Co. — | Woods, T. B. Sons Co. — 43 |
| K | Woodward, Baldwin & Co. — 36 |
| Kaumagraph Co. — | Westinghouse Electric Co. — 25 |
| Keever Starch Co. — | |

Comments of the American Wool & Cotton Reporter

(Continued from Page 19)

Cotton Reporter had on this date of two years ago that Dave Clark kicks about, 9,379 subscribers, and the Southern Textile Bulletin had 3,219 subscribers. One auditor audited the books of both papers, and the above are their figures, based upon the actual audit, and in that period, the American Wool and Cotton Reporter used no premiums to obtain subscriptions, but Dave Clark used 2,620 premiums and prizes to secure 3,219 subscriptions. That is, the American Wool and Cotton Reporter had 9,379 subscribers, using no premiums, and Dave Clark's Southern Textile Bulletin had only 599 subscribers who didn't get premiums.

The sixth paragraph of David's editorial is involved, because it is based upon his untruth that we claimed 63 subscribers in the State of Oklahoma, which claim we didn't make.

The seventh paragraph of David's editorial is uninteresting.

Non-Original Suggestion of a Perverted Mind.

The eighth paragraph of the same editorial is the final non-original suggestion of a perverted mind. The only sizing compound manufacturer who is now advertising in the American Wool and Cotton Reporter pays for all the advertising he gets in our columns. We have analyzed three of his sizing compounds, and they all analyze well. We haven't conducted our analysis of sizing compounds to boost or advertise the good ones. We haven't been able to secure samples of all the compounds on the market. All we want to do is wake up the cotton manufacturers to the fact that many of these sizing compounds are worthless.

We can understand the purpose of and reason for the above-quoted editorial in the Southern Textile Bulletin. That paper is carrying the advertisements of several of these fraudulent sizing compounds, as well as the advertisement of the one concern whose compound analyzed by us seemed to be honest material. Perhaps Dave has come to the point where he has got to make up his mind whether or not he will continue to profit by the advertising of these fraudulent compounds. We have named some of them in our analyses, and the textile manufacturers know now that these are fraudulent, and if they continue to see the advertising of these fraudulent compounds in David Clark's paper, they will wonder how it is that David continues to consort with and profit by advertising of this kind.

There is one interesting thing in these analyses of sizing compounds, that is the fact that most of our samples came from the Southern mills, and it seems that the Southern mills—right where David Clark is making a personal defense of fraudulent compounds—are the ones most imposed upon by these compound statements. It is in the Southern mills that most of the money is being wasted on fraudulent

compounds. David ought to help the cause, rather than to try to block it, for his own financial advantage. As near as we can make out, the sizing compound people get the high dollar from the Southern mills. They will sell their products to Eastern mills for six cents a pound, and will sell the same products to the Southern mills for eight, ten and up to eighteen cents a pound. David ought to help in this work, rather than to try to co-habit with and be a procurer for this dishonest business.

So David is throwing some mud.

Brogon Sale Ratified.

Sale of the Brogon mills, of Anderson, S. C., was ratified at a stockholders meeting, Tuesday to the Appleton mills, of Lowell, Mass. The sale price was not made public.

D. D. Little, of Spartanburg, is southern manager for Appleton mills, and thus becomes manager of the Brogon plant for the new owners.

The Appleton mills have sought a southern branch for several years. And at one time were known to be negotiating for a site in this section. By the purchase Appleton mills increases its manufacturing facilities by, roughly, 25 per cent.

It has 3,622 broad-loom, 114,398 ring spindles and 72 twister spindles. The Brogon has 30,468 ring spindles. Both concerns have facilities for dyeing, bleaching and finishing.

In normal times Appleton employs 1,850 and Brogon mills 600 people. Appleton manufacturers flannel-ettes, ginghams and outing flannels, while the southern unit specializes on flannels.

The physical property of the Brogon mills was carried on January 1, 1925, balance sheet at \$1,438,492, and excess of current assets over current liabilities amounted to \$976,979, a total of \$2,415,471. Capital stock was \$1,321,600 and profit and loss surplus \$1,122,279.

For the past few years the Appleton company has carried a reserve of \$2,000,000 for acquisition of a southern mill. As of October 31, 1924, it had additional reserves and surplus of \$3,355,18.

Statement of Ownership.

Statement of ownership, management, circulation, etc., of Southern Textile Bulletin, published weekly at Charlotte, N. C., as required by Act of Congress of August 24, 1912:

Publisher, Clark Publishing Company, Charlotte, N. C.

Editor, Managing Editor and Sole Owner, David Clark, Charlotte, N. C.

Business Manager, Junius M. Smith, Charlotte, N. C.

Known bondholders or mortgagees, None.

(Signed) JUNIUS M. SMITH,
Business Manager.

Sworn and subscribed before me this 1st day of October, 1925.

O. R. STRANE,
Notary Public.

My commission expires Sept. 12, 1926.

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WRITE FOR SAMPLES

The Manufacture Of Fancy Yarns

(Continued from Page 14)

not go down straight to the spindle from the nip of the rollers, but it is carried over a glass rod C, the distance between the roller air A B and the glass rod C being utilized to introduce suitable mechanism to obtain the desired effect. This is done by means of a rod D, over which one of the threads is passed. The rod D is controlled by a rotating cam E, which actuates the lever against the pull of the spring G. It will be apparent that this mechanism allows the above effect to be obtained without further mechanism. However, a very pure effect requires the cams to be carefully designed specially for the purpose.

Fig. 2 shows a slight modification of the mechanism. This modification is introduced to allow both threads composing the yarn to act as effect threads in turn. In this case, a rod D controls the thread marked F, and the rod H controls the other thread, which is marked Q. The other parts of the mechanism are marked exactly as in Fig. 1, repetition of the description being unnecessary. It should be noted that in the case of this modification both threads are put under tension and slackened alternately, the loose thread twisting always round the piece of thread which is under greater tension.

Curl Yarn.

An unpretentious kind of curl yarn can be made by a double set of processes requiring little mechanism, one process for the preliminary twist, and a second process for the finishing twist to get out the effect. The first process merely requires mechanism same as that described above for clouded yarn. The second twist is put in in the opposite direction in a plain doubling frame.

Spot Yarn.

Spot yarn of a simple kind can be obtained by a modification of an ordinary ring spinning frame, only two lines of rollers being employed. In this case, the back line is driven from the front line as usual, but the middle top rollers are taken off. The change wheel has a number of teeth knocked out at certain regular or irregular intervals. In this way, the back roller will not be continuously driven, but it is stopped at intervals. When the delivery of the back roller is interrupted, the thread emerging constantly from the front line acts as a fancy thread, for it accumulates on the then stationary "ground" thread which is delivered by the back roller, thus causing a spot to be formed. This simple device may be considered to be the basis of the more elaborate fancy doubling frames with two pairs of rollers, and which allow of a good control of the effect, such as is impossible to obtain by the above make-shift.

Gimp or Chain Yarn.

Gimp or chain yarn cannot be made on the ordinary doubling

frame either, for this class of yarn also requires two pairs of rollers. A thick loose thread runs through the front pair of rollers, and a comparatively fine thread through the back pair. The thick thread must be delivered at a quicker rate by the front rollers, the thin thread given out by the back rollers coming forward at a slower rate. The front rollers give out so much of the thick yarn that this twists spirally round the thinner yarn. The thick loose thread represents the chain links which are thus roughly attached to the thin ground thread, but the chain links do not yet appear as such before the second twisting. The second or finishing twisting requires the above preparing twist to be twisted together with another single end, with the spindles running in the opposite direction. This finishing twist opens out the links of the chain and binds them firmly in position. The final twisting can be effected on an ordinary ring doubling frame. The size of the links depends principally on the speed at which the thick thread is delivered by the front roller in the first twisting.—Textile Recorder of England.

Southern Spinners Bulletin

The weekly bulletin of the Southern Yarn Spinners Association says: "Yarn markets have been quiet for the past week with light trading, although there were numerous inquiries for nearby deliveries. Spinners' prices remain firm at an advance over market quotations. The curtailment still continues with an additional half-day required of mills supplied by the Southern Power Company. The local rains have not relieved the water situation. Already the curtailment of operations is having its effect on the market. Dealers' stocks are practically exhausted. Mill stocks are at a minimum, and nearby deliveries an impossibility. Buyers have been marking time awaiting the Government report of October 8.

"The Government report of 14,759,000 comes as a surprise to the trade, and will probably depress cotton prices to a considerable extent.

The spinners' positions is strong. With no stocks available and nearby deliveries an impossibility, they can with safety maintain the present level of prices, even though there is a considerable recession in cotton values. Present prices are below replacement value, and unless spot cotton goes below 20 cents, it is likely that either yarn or cotton goods values will be materially reduced.

"The enforced curtailment due to the shortage of water will prevent any accumulation of cotton goods. Manufacturers are reported to be operating entirely on orders, and to have sufficient orders for at least three months. With the enforced curtailment due to shortage of water there will be no accumulation of stocks. In spite therefore of the Government estimate of the crop, we do not anticipate any material reduction in the price of cotton goods."

| | | | |
|-----------|----------------------------------|-----------|-----------|
| GLYCERINE | GLYCERINE | GLYCERINE | GLYCERINE |
| GLYCERINE | DRAKE | GLYCERINE | GLYCERINE |
| GLYCERINE | CORPORATION | GLYCERINE | GLYCERINE |
| GLYCERINE | HIGHEST QUALITY GLYCERINE | GLYCERINE | GLYCERINE |
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PAGE FENCE

Power From Muscle Shoals

Chattanooga.—According to government engineers in charge, one generator of power plant of Wilson Dam at Muscle Shoals was to be "cut in" for temporary commercial service on Sept. 9 (later postponed a few days). Another is in process of "drying out," with date not yet announced when it will produce current. Power of this generator is to be supplied to Alabama Power Co. and absorbed into its system.

From the same source it is learned that the pool behind the dam lacks 10½ feet of being full and with the consequent "head" of only 82 feet, the single generator unit will develop about 24,000 horsepower. With the pool of the Wilson Dam at its normal height, the hydro-electric generator should have developed 30,000 horsepower. Low stage of the Tennessee river is given as reason for shortage of 10½ feet in the pool of the Wilson Dam, with the consequent decrease in the power of the active generator.

At present all that can be supplied from Muscle Shoals to the Alabama Power Company, or any other commercial agency, is current from this one generator. Failure of this line capacity, agency is of switching equipment and the fact that only one temporary step-up transformer is available prevent further power from going to commercial companies.

Much prominence was given to initial entry of Wilson Dam into the field of active hydro-electric plants. It is made its initial bow nearly seven years after work was first begun, and under circumstances when its current, at least for peace time purposes, was never more needed. Incidentally the time of its entry was the worst possible one for it to show favorable results. Low water and a failure of line connection to any privately-owned power company make its available assistance to a sorely-pressed section less than the full capacity of two generators.

As to the actual amount of power which the great Wilson Dam would be able to produce as "primary," or that developed continuously for 24 hours of the day and for every day in the year, there has been much confusion. It is easy to make the broad assertion that, according to plans, four generator units of 30,000 horsepower each are to be immediately installed. Four others are to be added with a capacity of 35,000 horsepower each, making what may be termed a present capacity of 260,000 horsepower. This does not include 10 other units, for which space has been provided, which would give the Wilson Dam a capacity of 610,000 horsepower. But these figures are simply ultimates. They mean nothing when primary power is considered and do not take into account that exceedingly variable factor, the Tennessee river, with its high and its low stream flow.

The Wilson Dam is a "stream flow" proposition. The pool above it is negligible, so far as storage purposes are concerned. The most that could be expected of it is to take care of daily fluctuations. Con-

tinued low water, resulting from droughts in the area of the river basin, as at present, determine absolutely the amount of primary horsepower that the plant can continuously produce. And as electrical energy is a marketable product for every day in the year, and by no means dependent on the weather it is only fair to consider what the dam will average, year in and year out. The only way the average can be raised is either by the installation of steam plants as auxiliary units, or storage dams.

The actual amount of continuous primary power of the Wilson Dam has been a much discussed problem. With a normal "head" in the pool, and with the stream flow average for the year ascertained, it has been estimated at 100,000 horsepower. The secondary power which it may develop in times of high water is entirely another matter. The Tennessee river is addicted to going on occasional rampages, and normally is much higher in the spring and winter than at other periods.

That Wilson Dam is only able to supply at this time less than 30,000 horsepower is not due alone to the fact that the other generators are not yet ready. Its productive capacity is limited principally by the extreme low water in the river itself, and secondarily by the fact that the commercial power companies have not felt it advisable to extend their lines to connect with Muscle Shoals. The result is a lack of line service. Actually the first is the main reason. If the other generators were installed they would at present be idle. One alone would require more than half the flow of the Tennessee river at this time to be in active service.

Area of the Tennessee river basin is 30,800 square miles and the average rainfall over this area is close to 51 inches. This average has, however, been considerably lowered by the summer department there has never been such a drought as is now affecting the Tennessee and its tributaries. This unusual dryness with its consequent shortage of water extends over the entire southeast. Independent of its disastrous effects on the crops, it has greatly diminished power supply throughout the entire area. The situation in North Carolina, South Carolina, and Georgia is acute. Already there has been a marked curtailment in commercial production dependent on electric power for its operation. Incidentally, the water shortage was the reason why the War Department made a temporary lease to the Alabama Power Co. of the current from Wilson Dam. It was thought this might help alleviate the situation in the southeast but Wilson Dam itself was unable to meet the emergency, because it, too, was caught in the water shortage.

The supply of water at the Wilson Dam has been so much reduced that at present it is estimated at not much in excess of 6000 cubic feet a second. With the height of the water in the dam only 82 feet, it is figured that the total amount of possible power production would be somewhat less than 45,000 horsepower. This total could not be in-

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creased without the help of a steam plant, even if the entire battery of 18 generators were ready for work, and switching lines and transformers were prepared to carry a maximum load of 610,000 horsepower to commercial companies.

Failure of rainfall in the river basin is also directly responsible for the height of 82 feet in the pool instead of 92, with a consequent loss of power. It is impossible to fill the pool further without stopping navigation below the dam. It is also inadvisable to lower the head and get more temporary power. Wilson Dam as it stands now being a stream flow development, is limited to its output of 45,000 horsepower. In times of high water, commercial companies of the southeast can fill their own needs. It is when water is low that they need help, but the Wilson Dam caught in the general deression. It is at present no super-project.

That the government itself recognizes that is evident from the fact that Congress has appropriated something \$500,000 during the last few years for an intensive study of the survey is to find suitable storage dam sites and to study means of preserving the "secondary" power of Wilson Dam. Only recently application was made by a subsidiary of the Tennessee Electric Power Co., through the regular channels, for permission to build 11 dams, which would be both storage and power-producing units. They were to cost between \$50,000,000 and \$100,000,000, and were to be on the Clinch and Powell rivers, tributaries of the Tennessee. In these great pools water was to be impounded and released in the lean months of summer. They were to act as feeders for the Wilson Dam and would in a sense preserve its usefulness for both peace and war-time emergencies by preventing its failure in times of stress. Actually they would double its normal water flow and would themselves produce a great deal of power.

Application to build such dams was refused pending the report of the investigating committee which will doubtless embody some such suggestions when it submits its findings on Nov. 15 of this year. The government may consider undertaking the work on its own behalf.—Boston News Bureau.

General Dyestuffs Corp. to Sell Grasselli Products.

Beginning October 1 the goods manufactured by the Grasselli Dyestuff Corporation will be sold by the General Dyestuff Corporation. The Grasselli Corporation will, however, execute existing orders and continue shipments on existing contracts.

Chicago Fuse Pamphlet.

An eight-page pamphlet has just been issued by the Chicago Fuse Manufacturing Company of Chicago, describing and listing the ferrule contact and knife-blade contact "Union" Renewable Fuses.

The fuses listed include sizes from 1 to 60 amperes for the ferrule contact type and 65 to 600 amperes for the knife-blade contact type, 250 or 600 volts.

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(Continued from Page 10)

tainer, where the soda cellulose is placed, carbon bisulfide distributed at a low temperature as the barrel is slowly rotating, and the excess heat of this exothermic reaction removed by cooling brine circulating through the double-jacket. Length of time and uniform temperature are also important factors of the xanthate reaction. During this process the white soda cellulose is changing color, which indicates the progress of xanthation, and finally turns to a sticky amorphous mass of orange color which is soluble in water. However, the pure xanthate of cellulose is an amorphous, colorless compound, the by-products containing sulphur imparting the yellow orange color.

Easily Soluble in Caustic Soda.

Here we meet for the first time a soluble compound of the insoluble cellulose. The resulting cellulose xanthate is easily soluble in caustic soda, producing an orange solution named viscose. The product is unstable and decomposes with acids, acid salts, ammonium salts, or if left by itself for a long period of time, the result of the decomposition is regeneration of the hydrated cellulose. This reaction continues until equilibrium is reached, which takes place quantitatively under special working conditions. It decomposes spontaneously, and the by-products after the formation of cellulose hydrate are caustic soda, carbon bisulfide and polysulfides. This solution of xanthogenic acid ester is made in mixers where diluted caustic soda solution receives the freshly-made xanthate. The mixers are iron tanks equipped with revolving arms and cooling jacket, as the solution is unstable and must be kept at a low and uniform temperature. After the solution of the orange-colored viscose is perfected, the liquid is pumped over to the ripening department, where it remains at a low temperature for a period of time, also under constant and low uniform conditions whereby the aging of the xanthate solution is effected. This process is similar to aging of soda cellulose described before. It is a polymerizing process due to hydrolysis during which the xanthate forms larger complexes by splitting off the sodium and sulphur compounds.

During the aging process the solution of viscose shows a progressive reduction of polarization degree in presence of increasing alkali concentration. The excess of carbon bisulfide and caustic soda present in the viscose solution forms at the same time by-products. It is a continuous process whereby by products like sulfide, polysulfides, thiocarbonates are produced which further decompose into hydrogen sulfide and into free sulfur by the acid solution in the precipitating bath when viscose in the following step of manufacture is spun delivering free cellulose. The viscose solution

is a gel which can be controlled by dialysis and under the ultra-microscope, whereby in the fresh-made solution the Brownian movement is visible. There are interesting problems of colloid chemistry connected with the aging process of viscose solution. The transition from the stage in which xanthate of cellulose is dissolved in a relatively small molecular condition to that where it separates into a semi-liquid state is continuous whereby the molecules are polymerized. The molecules of water cover the particles of the colloidal suspension and prevent the settling out of the molecules. The samples I am demonstrating represent the different stages of progressive polymerization. The cloudiness of viscose is due to suspended sulfur, impurities like iron, and to the excess carbon bisulfide which can be vaporized.

Process of Aging is Carefully Controlled.

The process of aging is carefully controlled, as the factors of time and uniform temperature are very important during ripening. The viscose solution is filtered several times thoroughly to obtain a perfectly uniform solution which is to be spun in the following operation through very fine openings, namely, 0.0045 of an inch in diameter. The impurities, like iron, undissolved fibres and others which are derived from the processing of pulp would plug these small openings, and the results would be un-uniform threads composed of different counts of single filaments. The point where the viscose is aged and ready to be spun is controlled in each batch by a simple laboratory method of precipitation. The progress of polymerization may be followed by titration with iodine solution.

The aged viscose can be decomposed and precipitated in the spinning process very uniformly, as it is a polymerized product less soluble than the primarily produced solution.

Spinning a Combination of Two Stages.

The spinning is a combination of two stages, first, the neutralization by the addition of an electrolyte, that is, solution, whereby the xanthate precipitates, and second, the decomposition of the xanthate resulting in cellulose hydrate due to excessive and prolonged action of acid or salt solution. The semi-liquid form of the coagulated product allows the formation of filaments which in size correspond with the minute holes of the jet through which the solution of xanthate has been projected under pressure. A moderate excess of precipitant is provided to insure the greatest possible solubility of the precipitate at the actual time of its formation. Also an elevated temperature is favorable because it accelerates the coagulation of the sol. There is a relation between surface tension of thread and concentration of coagulating medium.

How Size of Spun Thread is Determined.

The size of the spun thread is determined by the amount of solution

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of known cellulose content projected through the jet and the rate at which the thread is drawn off by the collecting and rotating spool or spin pot per minute.

The result of the spinning process from a chemical standpoint is the formation of insoluble cellulose hydrate, this formation being directly proportional to the strength and temperature of the acid in the precipitating bath and to the time of immersion. For instance, with a 5 per cent solution of sulfuric acid, the hydration of cellulose begins to be appreciable at 70 degrees C., and can be tested by copper number. The hydrated cellulose is changing the aggregate of the molecule during the spinning process under stretching in presence of acids, the physical result being an amorphous and not crystalline structure. During the hydration the cellulose is swelling similarly as in the presence of alkali during the previously described process of making alkali cellulose.

During the polymerization the viscosity of the solution is becoming higher and the coagulation with salt or acid solutions becomes more rapid. Non-aged solution would not precipitate and decompose uniformly; it can be done, but the process is too slow for commercial purposes and the spinning takes too long. On the other hand, the aging of the viscose should not be prolonged because the cellulose molecule would start before the solution reached the spinning machine.

Finally the air and gas bubbles present in the viscous solution are removed by vacuum before spinning because, if present in the viscose, they would break the filaments during the spinning. The usual speed of spinning, which means changing the solution into a solid thread, is about 50 meters per minute.

Numerous Patents and Methods.

There are numerous patents and methods relative to the chemical composition of the setting bath and the spinning apparatus. The two systems of spinning viscose fibre used to-day in the industry are the spool and centrifugal or box systems both operations being continuous. The precipitated or newly-formed fibres are somewhat gelatinous and are slightly stretched by winding on rotating spools or by passing over revolving glass rollers before entering the spin box. In the centrifugal system of spinning, the spin boxes are rotating at a speed of about six thousand revolutions per minute and this continuous uniform tension of the rotating centrifuge produces uniform luster of the threads and simultaneously the individual filaments are twisted together. In the spool system the individual filaments are placed on the spools parallel and therefore must be twisted on separate machines, the resulting twist being more uniform than if produced in the spin box. The spinning solution is ejected through minute holes of the spinneret, which is usually made of a platinum and gold alloy.

(Continued Next Week)

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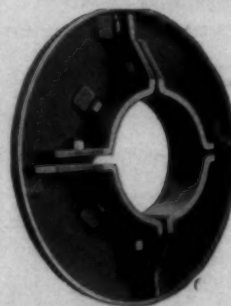
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Cotton Goods

New York.—The cotton markets continued steady throughout the week with good sales of finished and unfinished goods. Print cloths and sheetings for prompt delivery commanded a premium because of the continued curtailment in the South due to lack of power.

Sales of heavy cotton goods during the past several weeks have left the mills very well sold ahead until the end of the year. Fine goods have also sold well and most mills have enough business to keep them busy for some weeks to come.

In spite of the drop in cotton caused by the large government crop estimate, goods prices have been little affected because of the continued good demand and the lessened production. Stocks of goods in first hands are very small and it is thought that prices will be well maintained.

At the weekend, trading in print cloths and sheetings was rather light. Mills were inclined to go slow in accepting contracts for any future delivery and refused much of the business that was offered them.

In the fine goods division prices very firm and no price concessions were reported after the first two days of the week. Both carded and combed broadcloths were strong and buyers who bid for many construction found the mills so well sold on many styles that they saw no reason to accept lower prices.

Only a small business was done in tire fabrics during the week. Tire companies have slackened production and are not in need of large supplies at this time, although it is generally believed that they have not covered their requirements for next year.

There is some improvement in the market for duck, especially for army duck, a number of mills reporting a very good business in these goods. Hose and belting duck was quiet and sales of single and double filling duck were confined to small lots for filling in purposes.

The general range of combed yarn cloth quotations was maintained. The larger trade interest continued in the cotton and rayon dress goods, with various novelties being brought out in new weaves, and with dobby and jacquard patterns suitable for printing. This has established a tendency for smaller woven decorations.

The entire fine goods section slowed up, with the undertone strong

and a few constructions inclined to strengthen because of the cleaning up of spot supplies. This is particularly noticeable in combed lawns, with different mills reporting they had cleaned out their inventories on the different numbers which they had been holding since earlier in the year. They did not intend resuming the manufacture of these goods, having gone on broadcloths and specialties.

The Fall River print cloth market has been quiet during the week because of the expected Government cotton report, and even with this out of the way, the market has continued rather listless. Sales for the week are estimated at 45,000 pieces, made up principally of sateens, twills, and 36-inch limited trading also in 25-inch low count numbers.

The heaviest trading has been in 36-inch tobacco cloths, and the heavy buying of the last few days of the previous week resulted in a fair demand for these construction during the early part of this week.

Prices continue very firm, even though cotton has declined following the report, and mills are satisfied to watch developments until a more settled condition prevails.

No tendency to shade price is noted, and deliveries called for have been quick.

Cotton goods prices were quoted as follows:

| | |
|-------------------------------|---------|
| Print cloths, 28-in., 64x60s. | 7½ |
| Print cloths, 27-in., 64x60s. | 6½ |
| Gray g'ds. 38½-in., 64x64s. | 10½ |
| Gray goods, 39-in., 68x72s. | 11 |
| Gray goods, 39-in., 80x80s. | 13 |
| Brown sheetings, 3-yard. | 13½ |
| Brown sheetings, stand. | 14½ |
| Tickings, 8-ounce | 23½ |
| Denims | 19½ |
| Staple ginghams, 27-in., | 11½ |
| Kid finished cambrics | 9½a10½ |
| Dress ginghams | 13½a17½ |
| Standard prints | 9½ |

British Textile Manufacturers Report Increased Activity.

Reports from the British textile districts show a slightly increased activity during the first part of September, in all departments of both wool and cotton. Scottish tweed manufacturers are considerably encouraged and Lancashire cotton spinners report a better tone from India and China. Retail business continues good, and early fall weather has stimulated trade in heavier fabrics and costumes. (Acting Attache M. M. Mitchell, London.

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Extra staples, and good 1 1-16 and 1½ cotton from Arkansas, Oklahoma, and Texas, and Memphis territory.

The Yarn Market

Philadelphia, Pa.—Trading in the yarn market was brought virtually to a standstill by the publication of the government cotton estimate. Dealers quotations on carded yarns showed a drop all along the line, but mills were firm, the effect of the report being offset to a considerable extent by the well sold up condition of the mills and the curtailment of production for lack of power. Spinners showed no inclination of recede from their present strong position, especially in view of the fact that yarns are still below replacement costs. Buying generally was quiet, the trade being more or less dumbfounded by the crop report. Buyers were not inclined to consider purchasing yarns except for their most pressing needs. Deliveries before the first of the year are hard to obtain and for this reason the trade generally believes that yarn prices will suffer little from the lower cotton prices.

Combed yarns continued in a strong position. Mills are well sold ahead, and there are practically no stocks yarns available. Production is low and there is every possibility that the curtailment situation will remain unchanged for some time to come.

Mercerized yarns continued firm with a tendency toward higher prices. The steady demand in recent weeks has prevented mercerizers from accumulating any stocks and now that yarn deliveries are hard to secure, it is expected that mercerizers will continue to be firm and high. Buyers of these yarns are not able to secure them for prompt shipment, especially where large quantities are wanted.

Yarn prices were quoted here as follows, although spinners prices were generally higher:

| Southern Two-Ply Chain Warps.. | | |
|--------------------------------|--------|-----|
| 8s | 38 | a |
| 10s | 39 | a |
| 12s | 41 | a |
| 14s | 41 | a |
| 16s | 42 1/2 | a48 |
| 20s | 45 | a46 |
| 24s | 46 | a47 |
| 26s | 48 | a49 |
| 30s | 58 | a59 |
| 40s | 68 | a69 |
| 50s | | |
| Southern Two-Ply Skeins | | |
| 8s | 37 1/2 | a38 |
| 10s | 38 1/2 | a |
| 12s | 39 | a |
| 14s | 40 | a |
| 16s | 41 | a |
| 20s | 42 | a |
| 24s | 45 | a |
| 26s | 46 | a |
| 30s | 47 | a48 |
| 36s | 55 | a |
| 40s | 58 | a59 |
| 40s ex. | 59 | a60 |

| 50s | 67 | a69 |
|--|-------------|---------|
| 60s | 74 | a |
| Tinged Carpet | 3 and 4-ply | 36 a |
| White Carpet | 3 and 4-ply | 37 a |
| Part Waste Insulated Yarn. | | |
| 6s, 1-ply | 33 1/2 | a |
| 8s, 2, 3 and 4-ply | 34 1/2 | a35 |
| 10s, 1-ply and 3-ply | 36 | a |
| 12s, 2-ply | 37 | a |
| 16s, 2-ply | 38 1/2 | a39 |
| 20s, 2-ply | 40 1/2 | a41 |
| 26s, 2-ply | 45 | a |
| 30s, 2-ply | 46 | a |
| Duck Yarn—3, 4 and 5-ply. | | |
| 8s | 38 | a |
| 10s | 39 | a |
| 12s | 39 1/2 | a |
| 14s | 41 | a |
| 16s | 42 | a |
| Southern Single Chain Warps. | | |
| 10s | 39 | a |
| 12s | 39 | a |
| 14s | 40 | a |
| 16s | 41 | a |
| 20s | 42 | a |
| 24s | 44 | a |
| 26s | 45 | a |
| 30s | 46 | a |
| 40s | 57 | a |
| Southern Single Skeins | | |
| 6s | 37 1/2 | a |
| 8s | 38 | a |
| 10s | 38 1/2 | a |
| 12s | 39 | a |
| 14s | 39 1/2 | a |
| 16s | 40 1/2 | a |
| 20s | 41 | a |
| 22s | 42 | a43 |
| 24s | 44 | a |
| 26s | 44 | a45 |
| 30s | 45 | a46 |
| Southern Frame Cones. | | |
| 8s | 37 | a37 1/2 |
| 10s | 37 1/2 | a38 |
| 12s | 38 1/2 | a39 |
| 14s | 39 | a40 |
| 16s | 40 1/2 | a40 1/2 |
| 18s | 40 1/2 | a41 |
| 20s | 41 | a42 |
| 24s | 42 1/2 | a43 |
| 26s | 43 1/2 | a44 |
| 28s | 44 1/2 | a45 |
| 30s | 45 1/2 | a44 |
| 30s | 48 | a49 |
| 40s | 56 | a57 |
| Southern Combed Peeler Skeins, Etc.—Two-Ply | | |
| 16s | 56 | a60 |
| 20s | 58 | a62 |
| 30s | 65 | a67 |
| 36s | 70 | a75 |
| 40s | 75 | a80 |
| 50s | 85 | a |
| 60s | 87 1/2 | a90 |
| 70s | 1 02 1/2 | a |
| 80s | 1 12 1/2 | a1 15 |
| Southern Combed Peeler Cones. | | |
| 10s | 48 | a49 |
| 12s | 49 | a50 |
| 14s | 49 1/2 | a50 1/2 |
| 16s | 52 1/2 | a |
| 18s | 51 | a52 |
| 20s | 52 | a |
| 22s | 53 | a |
| 24s | 56 | a |
| 26s | 56 1/2 | a |
| 28s | 57 | a |
| 30s | 60 | a |
| 32s | 62 | a |
| 34s | 65 | a |
| 36s | 67 | a |
| 38s | 69 | a |
| 40s | 70 | a |
| 50s | 75 | a |
| 60s | 87 1/2 | a90 |
| 70s | 97 1/2 | a |
| 80s | 1 10a | a |
| Eastern Carded Peeler Thread—Twist Skeins—Two-Ply. | | |
| 20s | 50 | a |
| 22s | 51 | a |
| 24s | 56 | a |
| 26s | 59 | a |
| 30s | 63 | a |
| 36s | 65 | a |
| 40s | 70 | a |

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WANT position as superintendent of small mill or assistant in larger mill. Now employed as carder in large plant. Good references. No. 4684.

WANT position as manager or secretary of 5,000 to 10,000 spindle mill. Prefer Alabama, or state west of Alabama. Am well qualified and can give excellent references. No. 4687.

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WANT position as master mechanic. Now employed, good reasons for wishing to change. Large job preferred. Good references. No. 4697.

WANT position as overseer spinning, or spooling, winding and twisting. Now employed but wish larger place. Long experience and good references. No. 4698.

WANT position as superintendent of medium size mill or overseer carding or spinning in larger plant. Now employed as assistant superintendent. Good references. No. 4699.

WANT position as superintendent of yarn mill. Long practical experience as superintendent and overseer and have excellent record. No. 4700.

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Arabol Mfg. Co.
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A. Klipstein & Co.
Seydel Chemical Co.
Seydel-Thomas Co.
L. Sonneborn Sons, Inc.
Wolf, Jacques & Co.

Cotton Waste Machinery—
Woonsocket Machine & Press Co., Inc.
Saco-Lowell Shops.
Whitin Machine Works.

Counters (Revolution, Hank, Pick, etc.)—
The Root Co.

Couplings (Shaft)—
Charles Bond Company
William Sellers & Co., Inc.
Wood's T. B. Sons Co.

Cranes—
Link-Belt Co.

Dobby Chain—
Crompton & Knowles Loom Works.
Rice Dobby Chain Co.

Doffing Boxes—
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Doublers—
Saco-Lowell Shops.
Textile Finishing Machinery Co.
Universal Winding Co.

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Metallic Drawing Roll Co.

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Franklin Process Co.
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—See Dyeing, Drying, Bleaching and Finishing.

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Southern Spindle & Flyer Co.
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See Clutches.

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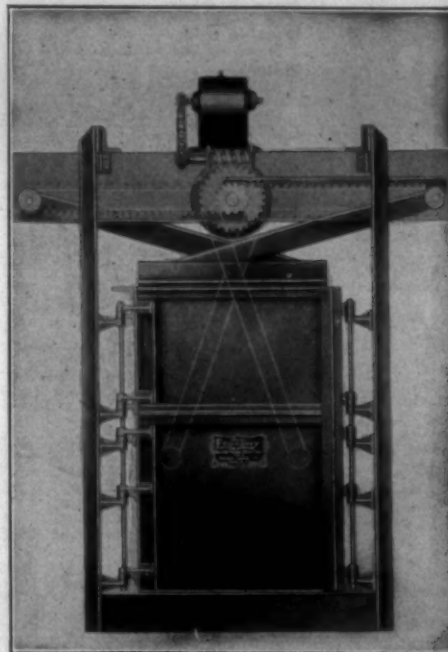
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Chamber completely inclosed—no openings. The chamber is made up of four sets of doors, so that the ends of the chamber open as well as the sides. The four doors, however, lock at two corners by a very simple locking device.

This new yarn press produces a bale 36" long by 24 wide, of 12 to 15 cubic feet, weighing about four hundred pounds and over, making it possible to produce bales 24 to 36 inches deep, weighing from two hundred and fifty to four hundred pounds and over. Chamber five feet deep. Equipped with a directly connected electric motor capable of pulling up to 10 horse torque, alternating current 2 or 3 phase, 50 or 60 cycle, 220 or 550 volt.

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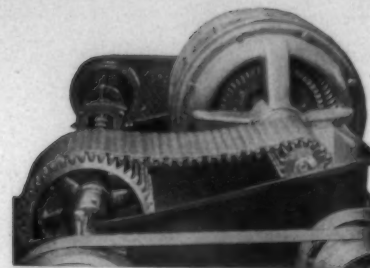
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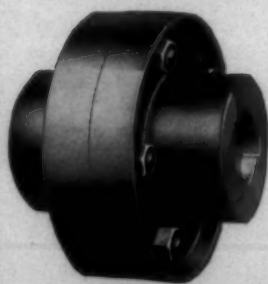
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